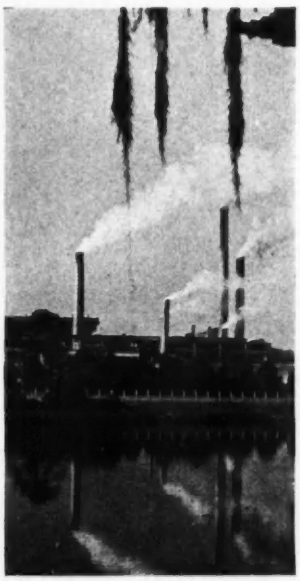
PAPER TRADE JOURNAL

MARCH 14, 1946



60th YEAR
1886—1946

In 1886 . . .

The sulphate wood pulp process had been invented by Dahl only two years before.

From the meager production of those pioneer days, wood pulp manufacture in the United States has increased to the phenomenal total of 10,165,000 tons in 1945 (nearly half from sulphate fiber).

Our own growth since our beginning in 1886 has also been consistent and satisfying. We have expanded year after year in personnel, facilities, volume... and are proud that our clientele includes the third generation of many of our original customers.

GOTTESMAN & COMPANY

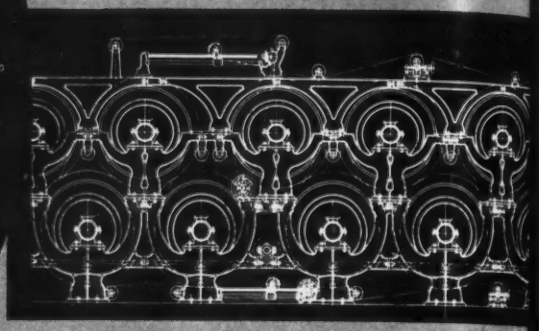
— INCORPORATED —

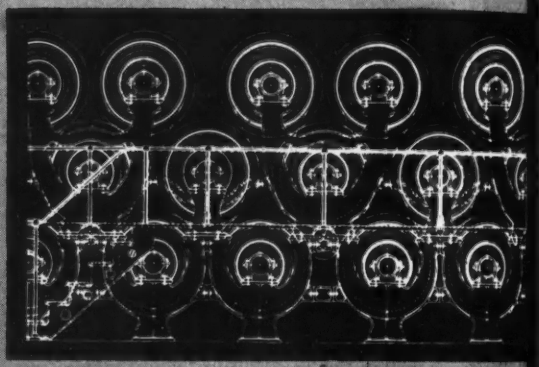
WOOD PULP

22 EAST 40th STREET • NEW YORK 16, N. Y.

EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

Drawings below illustrate, top to bottom, conventional designs of Downingtown Two Deck, Three Deck, and Vertical Dryers.





At Last

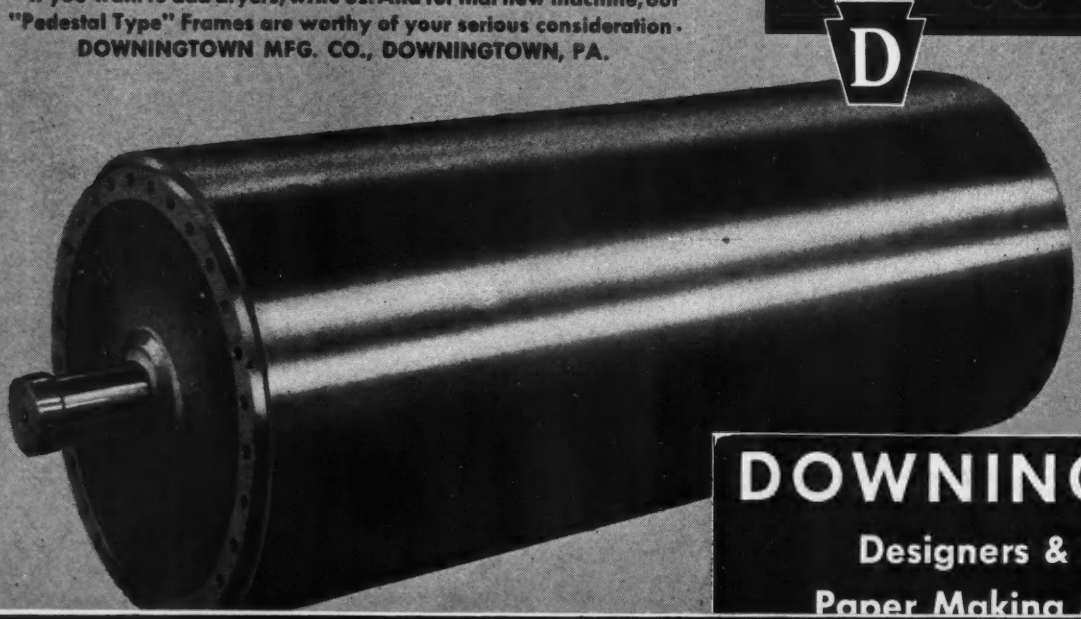
SOMETHING "NEW" IN DRYER FRAMES

Aside from its simplified, modern, streamlined appearance, the new Downingtown "Pedestal Type" Dryer Roll Frame makes it extremely easy to pass the sheet, provides excellent ventilation and is easy to keep clean. Of course, we still make the conventional design of Two Deck, Three Deck and Vertical Dryers.

About our Dryer Rolls; well, they must be good, for the first ones we ever built, well over 60 years ago, are still in operation. Our rolls are cast in our own foundry of carefully blended metal to provide a close grained, uniform surface. Sizes up to 60" in diameter.

If you want to add dryers, write us. And for that new machine, our "Pedestal Type" Frames are worthy of your serious consideration.

DOWNINGTOWN MFG. CO., DOWNINGTOWN, PA.



DOWNINGTOWN

Designers & Builders

Paper Making Machinery

PAPER TRADE JOURNAL

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Established 1872

Volume 122 Number 11

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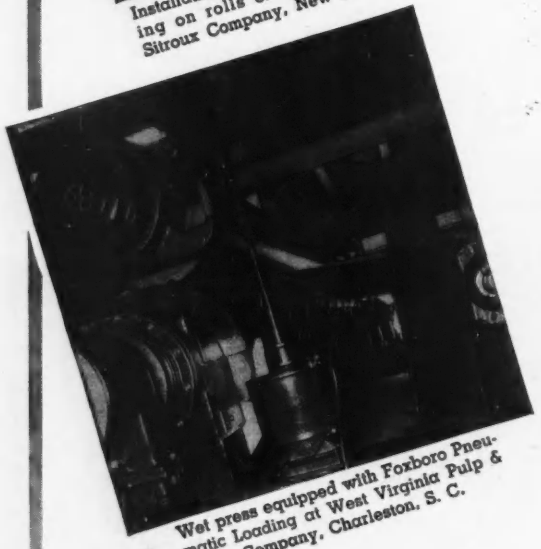
Top of super-calender at Riegel Paper Company, Milford, N. J., showing Foxboro Pneumatic Loading installation.

Installation of Foxboro Pneumatic Loading on rolls of Yankee machine at Sitroux Company, New Hartford, N. Y.



Wet press equipped with Foxboro Pneumatic Loading at West Virginia Pulp & Paper Company, Charleston, S. C.

EVERY WEEK...

Another Mill switches to Foxboro Pneumatic Loading!

Here's the best evidence you could have that pulp and paper mills are getting results from Foxboro Instrumentation. Over 300 mills have installed Foxboro Pneumatic Loading . . . and *others* are adopting it at the rate of *one a week!*

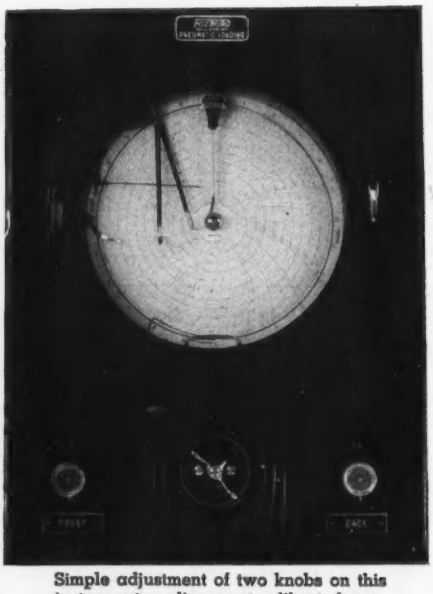
Foxboro Pneumatic Loading is a typical example of Foxboro Creative Instrumentation . . . original engineering that applies instruments to make processes work better. On press rolls, calenders and other roll equipment, this improved loading system maintains exact calibrated pressure on each end of the roll independently. Operating automatically, Foxboro Pneumatic Loading stops bouncing of rolls and eliminates across-the-roll variations.

Write for Bulletin B306. List of users in your vicinity supplied on request. **The Foxboro Company, 114 Neponset Ave., Foxboro, Mass., U.S.A.** Branches in principal cities of United States and Canada.

FOXBORO

Reg. U. S. Pat. Off.

PNEUMATIC LOADING



Simple adjustment of two knobs on this instrument applies exact calibrated pressure to roll-ends. Pressure continuously recorded. Instant-release valve center.

Vol. 122, No. 11

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

March 14, 1946

Paper Mills Continue to Expand Facilities

Thilmany To Erect New $80,000 Addition To Asphalt Plant and Will Build $40,000 Addition To Office — New Kimberly-Clark Building To House 180-Inch Wadding Machine — Other News.

APPLETON, Wis., March 11, 1946—A $40,000 addition to the main office will be erected by Thilmany Pulp and Paper Company, Kaukauna, Wis., it was announced last week.

The building will be 54 by 80 feet and will be one story high. It will be located directly behind the present main office building and will be used for general office work.

The structure will be of brick and concrete and will be completely fireproof. Construction work will be handled by the Permanent Construction company of Milwaukee which is now building the addition to the asphalt plant at the paper company.

Work on the addition to the asphalt plant has been slowed up lately due to the difficulty of getting building materials and skilled building workers, mill officials stated. This addition is about two thirds completed.

The estimated cost for the asphalt plant addition is $60,000 and this building will be 48 by 100 feet when completed. It is one story high with a basement.

Work Progressing on Lakeview Mill

Work is progressing on the new 101-foot addition to the Lakeview mill of Kimberly-Clark corporation of Neenah, Wis., which will house a new 180-inch crepe wadding machine.

The principal work in preparing for the addition consisted of the removal of a 600-ton coal pile that has stood on the site of the new building.

The new machine, of latest design, will have extra features. The wire will be 174 inches instead of 133 as on the present machines, and centralized control panels as well as some piping and conduits will be built into the machine frame, eliminating dust collectors.

Blinded Veteran Works in Paper Mill

Cooperation, Kimberly-Clark corporation magazine, in a special pictorial feature tells the story of "A Day With Bruce Long." Mr. Long, veteran of World War II, who was blinded when a shell exploded on Attu in the Aleutians where he was stationed, is working at Lakeview mill.

The young veteran, son of Mr. and Mrs. Elwyn Long, Ninth street, Menasha, Wis., rides to work as a member of a car pool from his neighborhood. He punches in or out in the time clock by finding his card which bears a metal tab in the corner. He can find his own locker and works successfully in the Kotex packing department, handling over a thousand boxes per day as he packs them into cardboard containers. He eats with the rest of the workers in the cafeteria. The pictorial story of his success, although handicapped, shows him at home with his special phonograph which permits him to listen to readings of novels, short shories and current event magazines, playing cards with his wife and other relatives by means of braille markings on the cards.

Three pictures show Mr. Bruce with his leisure time activities, making purses and belts out of leather, bowling and typing letters.

Mr. Bruce received treatment at the Old Farms Specialized hospital in Avon, Conn.

Wisconsin River Still Ice-Locked

Heavy rain and snow last week resulted in a sharp increase in flowage of the Wisconsin river, but that stream remained ice-locked with no immediate prospect of a breakup. The rate of flow at the Consolidated dam of the Consolidated Water Power and Paper Company at Wisconsin Rapids, Wis., was 6200 cubic feet per second on Wednesday, March 6, as compared to a normal of 4000, as a result of a heavy downpour the previous night. Flow slackened somewhat on Thursday, but the state experienced one of the heaviest snowfalls of the season on Friday. However, with near zero temperatures forecast for the weekend, no great increase in flowage was anticipated.

Will Plant 7,000,000 Trees This Season

Tree planting will be resumed in the national forest of Wisconsin, Michigan and Minnesota this spring after a five-year lapse during the war, Jay Price, U. S. regional forester, announced March 7.

Approximately seven million trees will be planted over 12,000 to 15,000 acres between April 15 and June 1. Local labor will be employed. Planting stock will consist of three and four year old red and jack pine and white spruce. Mr. Price said that more than 70,000 acres within the boundaries of Chequamegon and Nicolet national forests in Wisconsin are in need of planting.

Thilmany Plant Fire Chief Retires

Harold Newton, Kaukauna, Wis., plant fire chief for Thilmany Pulp and Paper Company of that city, has retired after about 25 years of service with the company, it was announced March 8. He planned to leave this week for Aitken, Minn., where he will manage a turkey farm.

cleaner, drier steam from

Elimination of solids and moisture from steam leaving boiler drums, and an assurance of positive boiler water circulation, are accomplished with an unusual degree of effectiveness by the B&W Cyclone Steam Separator. Seven years of wide use in Babcock & Wilcox boilers have thoroughly proved the efficiency of the B&W Cyclone Steam Separator for the consistent and reliable production of clean, dry steam.

WHAT THE CYCLONE DOES:

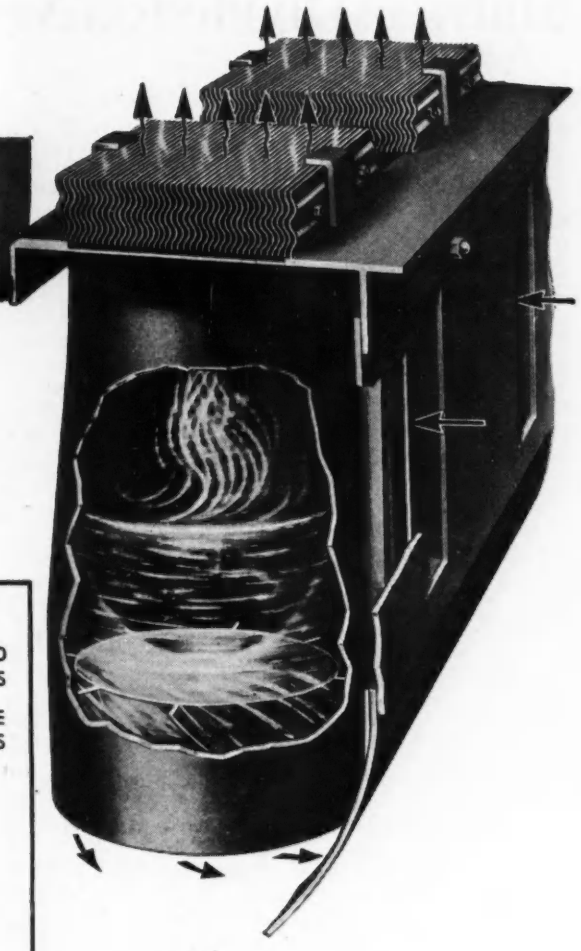
The separation of the water and its attendant solids from the steam is so nearly complete in the Cyclone Steam Separator that boiler and turbine performance are improved in many important ways:

1. Boilers can be operated at greater water-level variation without priming, making larger and more rapid load swings safely possible.
2. Complete separation of the steam from the water produces a maximum circulating head and delivers solid (steam free) water to the downcomers, thereby protecting boiler tubes against overheating and burnout.
3. Dry steam is assured over wider range in boiler water concentration.
4. Superheater tubes are protected from burnouts and failure due to scale deposits.
5. Longer periods of continuous boiler operation are secured.
6. Savings in maintenance time and expense are effected in boilers and turbines.
7. Safety is promoted by reducing variations between water levels in drum and gauge glass.
8. Turbine blades stay clean longer, permitting longer operating periods between cleanings.
9. Desired KW output can be maintained for longer periods.

Separation of the water from the steam by the Cyclone Steam Separator is a continuous action. The kinetic energy of the steam and water mixture entering the Cyclone forces the water and any entrained impurities to the wall of the cylinder, while the nearly pure, dry steam passes out at the top between corrugated scrubber plates. The water swirls down the cylinder wall to the bottom, where kinetic energy is again utilized to force the water through directing vanes with sufficient velocity to overcome the head of water in the drum. The action within the separator prevents its flooding, and assures the delivery of clean, dry steam at all times.

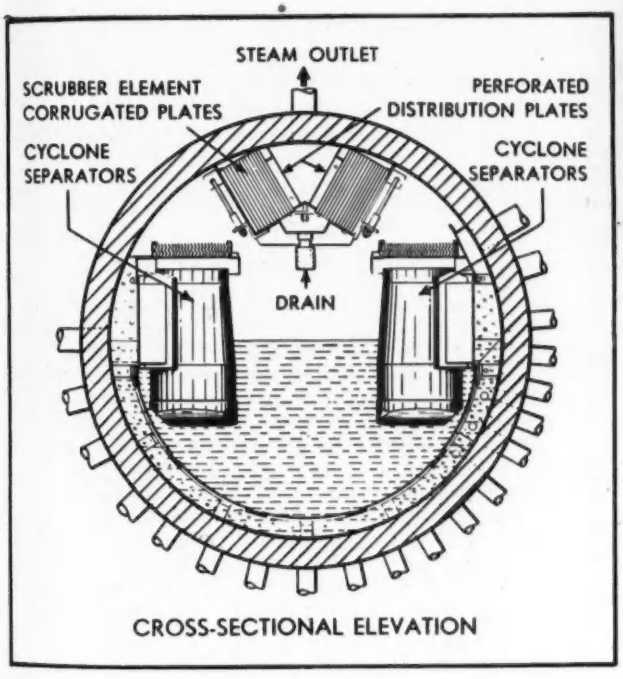
The Cyclone Steam Separator is another B&W "first" in the development of better steam-generating equipment — another reason why it pays to *see B&W first* for the latest solution to any steam problem.

a cyclone...



B&W Cyclone Steam Separator with section cut away to show functioning.

Cross section of typical Cyclone Steam Separator installation in a large boiler drum.



CROSS-SECTIONAL ELEVATION

Water-Tube Boilers, for Stationary Power Plants, for Marine Service . . . Water-Cooled Furnaces . . . Superheaters . . . Economizers . . . Air Heaters . . . Pulverized-Coal Equipment . . . Chain-Grate Stokers . . . Oil, Gas and Multifuel Burners . . . Seamless and Welded Tubes and Pipe . . . Refractories . . . Process Equipment.

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
85 LIBERTY STREET, NEW YORK 6, N.Y.

Midwest Divided on New OPA Price Formula

Some Criticize Plan As Too Slow and Cumbersome While Others Believe Basic Controls Are Needed—Waste Paper Collections Are Declining — Salesmen Install Officers — Other Late Market News.

CHICAGO, Ill., March 11, 1946—The market as a whole noted that production of paper in the country was reported up last week but was said to be encountering increased difficulty in getting finished goods despite several commendable alterations in the OPA pricing polices. Some paper trade leaders here felt that the new wage-price formula first proposed by the Administration would be "too slow and cumbersome" to expedite production. Others felt it a step in the right direction and felt that basic controls were still a necessity in the paper trade. There did, however, sem to be unanimity of opinion as to a readjustment of OPA policies, not only to provide proper incentive for production but to do away with the delays arising from "cumbersome" readjusted price efforts.

All grades of paper were in strong demand with supplies said to be slightly more plentiful in certain grades. However, the consensus of opinion was that little improvement could be noted until the weather opened up the logging and pulp activities at the mill sources.

Waste Paper Collections Off

An increasingly important barometer in local paper trade calculations, waste paper, showed little improvement during the past week. Collections were beginning to taper off because of more rainy weather. Prices were at ceiling tops and there were no developments reported in the pending change in hauling charges which had encountered some opposition in certain quarters.

American Can to Make Fibre Containers

The American Can Company is reported to be ready to build several new plants throughout the country for the exclusive production of fiber milk containers. This information was revealed in Chicago this week after it was reported that a study had convinced company management that fiber milk containers are favored by housewives who buy from local dairy stores—and favored because of no deposits, returns, bottle washing and improved sanitation. The locale of the new plants has not as yet been decided but it is understood that they will be located in populous areas where no competition exists, thus avoiding the high cost of shipping.

Wartime restrictions, said the statement, held output of fiber milk containers to a 2 billion unit annual volume but American Can's management is predicting that a 4 billion production by the end of 1947 and a high of 10 billion containers by late 1950 as very much a possibility.

Salesmen Install Officers

The western division of the Salesmens Association of the Paper Industry spent last Monday noon, March 4, in getting acquainted with its new leaders. Ed Edwards, Howard Paper Company, new vice president for the western division was properly installed along with Archie Hepburn of the Tomahawk Kraft Paper Company, the assistant vice president. A goodly crowd assembled in response to a special letter sent out by Ben Babbitt social chairman, urging a fine attendance to start the new officials off on the right track. Pat Patterson, Flambeau Paper Company and new President of the SAPEYES, also came in for his share of the congratulations.

Mr. Edwards reported that chairmen of the standing committees and their personnel would be ready for announcement at the next meeting of the Division on March 11. The remainder of the session was given over to a report from various sales executives who attended the industry meetings in New York City late in February. Each speaker reported his impressions of conditions in the grades in which he was specifically interested.

Rearrange Warehouse Facilities

The Chicago Paper Company is reported to have rearranged its warehouse facilities to develop a more selective system of stocking paper. The program was carried out when inventories were very low and is said to be so workable that the current re-arrangement will become a pattern for future operations. About one-third of the warehouse space of the company has been conserved.

Wrapping Paper Merchants Meet Here

Wrapping paper merchants from this area met in Chicago last week to discuss many problems confronting the industry, not the least of which was reported to be the shortages which confront the trade and the controls which affect prices. The meetings were held at the Blackstone Hotel, lasted all day and included a noon luncheon. The Chicago Paper Association, Illinois Paper Merchants Association, Middle States Wrapping Paper Association and Wisconsin Paper Merchants Association all cooperated in the program and were represented in the attendance. It was reported as one of the first meetings for a few of these organizations which have been newly formed to provide for full cooperation and cohesion of action in this area.

George Goodsir

George Goodsir, Vice-President and Eastern Representative of Mid-States Gummed Paper Company for the last 19 years, died February 22, 1946, after a short illness. His first "job" brought him in contact with paper—for his first work was as an employee of a paper broker. Later, he headed his own paper brokerage business, importing McLaurin gummed papers from Scotland.

For several years prior to 1927, Mr. Goodsir had worked with Irving McHenry, president of Mid-States Gummed Paper Company on mutual gummed industry problems. During February 1927 Paper Trades Show in New York, Mr. McHenry announced Mr. Goodsir's affiliation with Mid-States as vice-president, director and eastern representative.

Mr. Goodsir was long active in Gummed Industry Association work.

UNCHARTED SEAS OF COLOR

Much of the dyestuffs research conducted in the Du Pont Laboratories is toward definite goals: improvements in established products, better methods of application, etc.

But certain groups of scientific adventurers spend their time sailing uncharted seas of color, their trained eyes searching the chemical horizon for undiscovered scientific facts relating to dyestuffs.

Many of these facts never develop beyond scientific curiosities. Others result in new and better dyes; new and better use methods.

E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington, Del.

Du Pont Dyestuffs

DU PONT DYESTUFFS

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

LISTEN TO *"CAVALCADE OF AMERICA" EVERY MONDAY EVENING . . . NBC*

Canada's Paper Industry to Benefit by Loan

Marked Advantages Expected To Come From New Canadian Loan of $1,250,000,000 To Great Britain—Steady Progress Being Made By Paper Industry — Export Board Aids Producers — Other News.

MONTREAL, Que., March 11, 1946—In common with all other industries in Canada, the pulp and paper industry is expected to derive marked advantages from the new loan of $1,250,000,000 which this country has agreed to advance to Britain "as an essential step in the expansion of world trade and to enable the United Kingdom to overcome her temporary financial difficulties in purchasing foodstuffs and other materials."

According to Ottawa despatches, the new loan is expected eventually to clear up the situation whereby large contracts for the supply of Canadian newsprint to the United Kingdom are being held down to token shipments, and to restore Canada's place in her historic market for paper and pulp within the British Empire.

As regards the province of Quebec, the acknowledged center of the pulp and paper industry in the Dominion, a semi-official statement puts the matter thus: "The province of Quebec is vitally affected by the loan agreement. It means increased employment in the ports of Montreal, Quebec, and Sorel; it means increased employment in the aluminum industry, in the pulp and paper mills and in the woods, and makes the employment picture a pleasant one for the next year and for some years to come." Sir Wilfrid Eady, of the British Treasury, a member of the British party which negotiated the agreement here, states that more than one billion dollars of the loan will be spent in the Dominion within the next two years.

Conditional on Ratification of U. S. Loan

In making this loan, the agreement already effected with the U. S. Government has been taken as the model, the terms, both as regards interest and dates of repayment being exactly the same. It is admitted, however, that Canada's action is conditional upon the U. S. loan being ratified substantially as it now stands, and that if the U. S. loan is rejected, or has conditions attached to it by Congress which make it unacceptable to Britain, the Canadian loan agreement will have to be drastically revised. What this "drastic revision" would be is not stated, but it is significant that the suggestion has been put forward in certain sections of the press that under such circumstances it might be good policy for Canada herself to undertake to finance British requirements by offering to increase the present loan by a further three and three-quarter billion dollars, thus enabling Britain to withdraw her application for the loan from the United States.

However, pending the action of the United States Congress, the outcome of which is being eagerly anticipated here, the present purpose of Canada is stated by Prime Minister Mackenzie King to be as follows: "The agreement is designed not only to overcome Britain's temporary difficulties in regard to purchases in Canada, but to contribute to the steady development of trade between the two countries, the removal of trade barriers and the free use of currencies for international trade. These policies are in the vital interest of both countries and both Governments believe that by this agreement they have taken an essential step in the expansion of world trade on which the prosperity of their countries depends."

All Parties Approve

The new loan agreement has been hailed in highly appreciative terms by all parties in the British Parliament and by all political parties in Canada. A feature of the agreement is that an effort has been made to clean up all outstanding financial accounts and to have the decks cleared for the post-war period. Thus the $700,000,000 interest-free loan which Canada had already made to Britain, of which about $600,000,000 remains to be paid, has been renewed on interest-free terms and an account of $425,000,000 which the United Kingdom owed to Canada in respect to the Commonwealth Air Training Plan has been cancelled. Other outstanding claims in respect to the war have been taken care of in a supplementary agreement, Britain, by making a payment of $150,000,000, cancelling her claims against Canada, and Canada cancelling hers, including the cost of food and other supplies shipped to Britain between V-J Day and the end of last month.

Over 5 Billion in Financial Assistance

Canada's financial assistance to Britain in loans and gifts, including the new loan, totals more than $5,000,000,000. This includes an outright gift of $1,000,000,000 in 1942, and since then about $2,000,000,000 in Mutual Aid (which is the Canadian equivalent of Lend-Lease).

It is pointed out here that while the new loan agreement by the United States provides for a loan three times the size of the new Canadian loan, Canada's is relatively much larger in proportion to its population and resources, as the population of the United States is 12 times the size of Canada's and the annual national revenue of the United States 18 times larger.

Change in Ownership

According to a report from Saint John, N. B., Port Royal Pulp and Paper Company, of that city, has been sold to the K. C. Irving interests, who control a number of important business interests in the province. There will be no interruption in operations, and for the present the manager will continue to be A. J. Lacroix, the vice-president and general manager of the company. The mill has a capacity of 125 tons of chemically bleached sulphite pulp per day.

Price Adjustments

According to reports here, the Prices Board has permitted price adjustments in respect to certain fine papers, mostly used for magazines and other periodicals, in line with increasing costs of production. Mills specializing in these papers are stated to have been granted an increase of 50 cents per 100 lbs. in price.

Westvaco Sets Record at Charleston

CHARLESTON, S. C., March 4, 1946—The West Virginia Pulp & Paper Company here broke all of its previous production records in the paper mill last month when an average daily production of 462.07 tons of paper was maintained throughout the 28-day period. T. A. Cook, resident manager, said February's production averaged 20 tons more per day than any previous monthly period since the establishment of the mill in 1937. He added that January of this year was also a record month with an average daily production of 441 tons of kraft paper board. J. D. Cowan, assistant manager in charge of production, said that the increased production this year was due to "the complete cooperation of all departments in the mill. It is a record of which we should be proud."

Mr. Cook went on to say that in spite of the record production of paper the total output of the mill had been curtailed due to wood shortages caused by rainy weather. "During normal production the Charleston mill averages some 150 tons of wet lap pulp and 425 tons of liner board per day. Mr. Cook pointed out that due to the shortage of wood the daily production of wet lap pulp had been noticeably decreased. He said that the demand for paper products at this time was great as many mills had been forced to curtail production due to the wood shortage.

"To achieve the record for February the finished product was being produced 95.3 per cent of the time during the 28 days," Mr. Cook said. "Production time lost during the same period totaled 31 hours and 29 minutes.

The paper machine, which operates 'around the clock' during production, is one of the largest in the country, measuring 243 inches in width and 450 feet in length. The installation of a similar machine is included in the $5,000,000 two-year expansion program now in progress at the plant. The new machine will make wrapping and paper bag paper. This machine will operate from the pulp now being used by the wet lap machine. The new machine is scheduled to be in operation by fall."

New Sales Manager for Howard Smith

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 4, 1946—George A. Davidson has retired as sales manager of Howard Smith Paper Mills, Montreal, after 33 years in that post. He is succeeded by W. H. Aird, with headquarters in Toronto. Mr. Davidson took over the job at a time when relatively few fine papers was made in Canada, and it was primarily through his efforts that the company succeeded in this new field. During his career Mr. Davidson served for three consecutive years as chairman of the Book and Writing Section of the Canadian Pulp and Paper Association and for one year as chairman of the Board Section. His successor served the company for years in its export department and also in the sales field in Canada. He served with distinction overseas in the war, and left the army in October, 1944, to return to his old position with the company.

American Writing Nets 41 Cents

The American Writing Paper Corporation for 1945, reports a net income of $150,611, equal to 42 cents a share on net sales of $9,210,788, compared with $184,312, or 51 cents a share on net sales of $9,121,982 in 1944.

Flintkote Plans New Laboratory

Construction of a new research laboratory at Morristown, N. J., costing approximately $1,000,000 for plant and equipment, as part of an accelerated program of product research and development, and plant expansion and modernization, representing a contemplated outlay of approximately $10,000,000, of which approximately $6,000,000 was authorized prior to December 31, 1945, was disclosed late last week by I. J. Harvey, Jr., president of The Flintkote Company. Simultaneously, the 1945 Annual Report to Stockholders of the Company was released.

Flintkote net sales in 1945 were $37,023,416. Consolidated net income transferred to surplus in 1945 was $1,643,285, equivalent after provision for dividends on preferred stock to $1.32 per share of common stock outstanding at the end of the year, compared with $1,477,394 in 1944 or $1.38 per share outstanding at December 31, 1944. Common stock dividends amounting to $918,182 and preferred stock dividends totalling $268,801 were paid during 1945.

A tabulation for the years ended December 31, 1936 through 1945, included in the Annual Report, shows that net sales increased in the ten-year period from $13,671,373 in 1936 to $37,023,416 in 1945. A pictorial chart in the Report reveals the growth in product diversification as reflected in sales since 1936. "All Other Products" (products aside from old-line building materials in the line in 1936) represented 55 per cent of the total dollar volume in 1945, in contrast to 28 per cent in 1936. "Old Line Building Materials", while increasing dollar-wise in the 1936-1945 period, accounted for 45 per cent of the total dollar sales volume in 1945 in contrast to 72 per cent in 1936.

McMurray Promotes Plain

MINNEAPOLIS, Minn., March 1, 1946—C. T. McMurray, vice president in charge of sales, Minnesota and Ontario Paper Company, appointed as his assistant U. L. Plain of Minneapolis, effective March 1, 1946. Mr. Plain has been with the Insulite division in various sales capacities since he came with the company as assistant export manager in 1928. When the company's Finland Insulite mill went into production in 1931 he was transferred to Amsterdam, Holland, the headquarters of the European operations.

After his return from abroad he was made Canadian sales manager and remained in that position for several years. In 1940 he was appointed Pacific district manager with headquarters in San Francisco.

Since his return to Minneapolis he has been assistant to the general sales manager.

Cuneo Interests Buy Combined Locks

APPLETON, Wis., March 5, 1946—Sale of the Combined Locks Paper Company, a Wisconsin corporation, to the Combined Locks Paper Company, a Delaware corporation, was announced today by representatives of the Lewis L. Alsted estate. The mill, in the village of Combined Locks, manufactures lightweight printing and book paper. The announcement said that principals of the purchasing company were John F. Cuneo, president of Cuneo Press, Chicago, and Hemphill, Noyes & Co., New York investment bankers. Officers of the new company include Raymond P. Fischer, Chicago, president.

Bag-making machine with electronic register control at Bemis Brothers Bag Co., Peoria, Ill.

Want paper cut-off

WHEN paper cut-off across a strip must come in exact relation to printed matter, borders, or designs, this electronic register-control system opens up new possibilities for faster, more accurate work. It is applicable to continuous-web machines, such as bag-making machines and tubers, and to intermittent-feed types such as wrappers.

Electronic register control compensates for draw-roll slippage or lag, web stretch, web speed in relation to cutter speed, and dimensional changes in the web caused by drying ink. It enables you to improve product appearance; reduce costs, maintenance, and spoilage and to step up production.

In its essentials this G-E electronic register-control system consists of an adjustable photo-electric scanning head, a selector switch, an electronic control panel, and a control station. Impulses, controlled by register marks on the web, are picked up by the scanning head and fed into the electronic control panel, where they are compared with impulses from the selector switch, controlled by the position of the knife. This comparison increases or decreases web speed the exact amount necessary to maintain register within close limits.

Whenever paper in motion creates a control problem for you, or a question of drives comes up, you'll find G.E. ready with a practical solution, derived from wide experience on all kinds of paper-mill, converting, and printing-plant controls and drives, as well as from electronic research. Let our application engineers give you the facts on operating and maintenance experience with electronic control systems now in daily use. You'll find convincing evidence of high operating continuity under difficult service conditions. Ask for Bulletin GEA-4371. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GE

CUT-OFF

REGISTER CONTROL

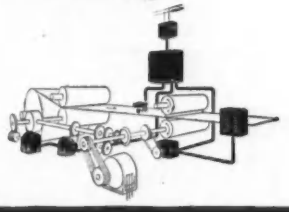
that TOES THE LINE?!

NOT HERE | + | NOT HERE

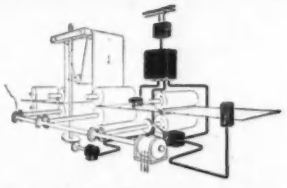
BUT HERE

G-E electronic register control gives extreme accuracy to cut-off for bags, wrappers, labels, and other fabricated paper products.

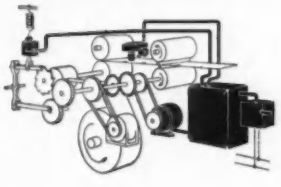
FOR MACHINES FED FROM PREPRINTED ROLLS. Here two-way correction is effected through a differential gear. Comparison of the indication of web position, as registered by the scanning head, and indication of knife position, as registered by the selector switch, are used to increase or decrease the speed of a correcting motor the amount necessary to maintain proper register. Result—improved product appearance.



FOR MACHINES FED DIRECTLY FROM THE PRINTING PRESS. Here two-way corrections are made through a motor-adjusted compensating roll. Variations in the comparison of "signals" from the scanning head, and from the selector switch, control both speed and direction of a correction motor which adjusts the compensating roll to maintaining register.



FOR INTERMITTENTLY FED MACHINES. Because of time required for wrapping, such machines, generally have a low web speed of 50 feet per minute, or less. They are so designed that the draw rolls do not advance the web far enough between cuts, and therefore require one-way control only. Here the comparison of the two signals is used to energize a solenoid whenever the web has lagged a predetermined amount, causing the machine to over-feed until it is again in register. Production is stepped up, costs reduced.



GENERAL ELECTRIC

N.P.T.A. Will Hear Brewster

The office of the National Paper Trade Association has made public the following preliminary program of their Annual Convention to be held at the Waldorf-Astoria, New York, Monday to Wednesday, April 1-3. Hon. Owen Brewster, United States Senator from Maine, a leading pulp and paper producing State, will address the open industry session Monday afternoon, April 1, to which manufacturers, mill representatives and all members of the industry are invited. Another speaker at this session will be Grant Richardson, former Director of the Paper Division of the War Production Board, who held that office at the time this all important regulating agency was dissolved.

Other speakers during the Convention whose views and information will be of value include C. H. Mugridge; A. E. Giegengack, Chief of the Government Printing Office, Washington; B. C. McCabe, President, National Tax Equality Association; H. O. Nichols, Manager Eastern Division, Crown Zellerbach Corporation, formerly Chief of the Wrapping Paper Section of WPB; E. W. Tinker, American Paper and Pulp Association and M. C. Dobrow, Writing Paper Manufacturers Association.

In spite of the unusual difficulty in obtaining Hotel accommodations for the Convention period, the Association is already assured of a large attendance and that a good representation of manufacturers will be on hand to meet their merchant customers while they are here. It is hoped that the New York hotel situation will ease considerably before next month and those who have not yet succeeded in securing their accommodations will, within the next two or three weeks, be able to do so. In this effort, the Association office will be glad to render all possible assistance.

While the program is necessarily subject to change, because of unforeseen developments, it is tentatively set up as follows:

MONDAY, APRIL 1

2:30 P.M. Opening session, to which manufacturers are invited, President R. M. Harris presiding.
Speakers: Hon Owen Brewster, U. S. Senator from Maine.
Grant Richardson, former Director, Paper Division, WPB.

4:30 P.M. Conference of Local Association Secretaries with National Counsel and staff.

TUESDAY, APRIL 2

10:00 A.M. Business meeting for members only. President Harris presiding.
Address: "What's New in Industrial Relations".
C. H. Mugridge, Partner, Rogers & Slade, New York, Industrial Relations Consultants.
Address: "Industry Problems and Outlook,"
E. W. Tinker, Executive Secretary, American Paper & Pulp Association.
Report of Committee on Operating Efficiency, W. G. Leathers,
Report of Traffic Committee, R. W. Campbell, Chairman.

2:30 P.M. FINE PAPER DIVISION MEETING, Vice-President A. W. Towne presiding.
Introduction of J. F. Newcomb, President, Printing Industry of America, Inc.
Introduction of F. W. Maxwell, Executive Director, Lithographers National Assn.
Address: "Current Problems of the Public Printer", A. E. Geigengack, Government Printing Office, Washington.
Address: "Prospects for Fine Paper Supply, M. C. Debrow, Executive Secretary Writing Paper Manufacturers Association.
Survey Report, followed by discussion.

5:00 P.M. Wrapping Paper Governing Committee
5:00 P.M. Fine Paper Governing Committee
8:30 P.M. Board of Directors.

WEDNESDAY, APRIL 3.

10:00 A.M. WRAPPING PAPER DIVISION MEETING. Vice-President G. E. Carpenter presiding.
Speakers: B. C. McCabe, President, National Tax Equality Association
H. C. Nichols, Managing Eastern Division, Crown Zellerbach Corp.
Remarks by Manufacturers formerly Chief, Wrapping Paper Section, WPB.
Survey Report, followed by discussion.

2:30 P.M. ANNUAL MEETING, President Harris presiding.
Remarks by the President
Report of Board of Directors
Report of Treasurer, J. O. Bulkley
Report of Executive Secretary
Address of Counsel, J. K. Javits
Nomination and election of officers.

Paper Manufacturers Heads Dine

PHILADELPHIA, Pa., March 11, 1946—Paper Manufacturers Company recently held a "Post-War Get-Together" dinner at the Benjamin Franklin hotel for executives and foremen. As at all similar functions sponsored by the company, a fine spirit of good fellowship prevailed and the gathering afforded each guest a splendid opportunity for closer informal acquaintance with his fellow workers. Previous to the dinner, Dr. H. R. Dalton, who is in charge of the Research Department, gave a most interesting talk on the composition and characteristics of various paper fibers. His talk was illustrated with lantern slides and was presented in a manner that was understood by the layman.

Household Products Promotes Taylor

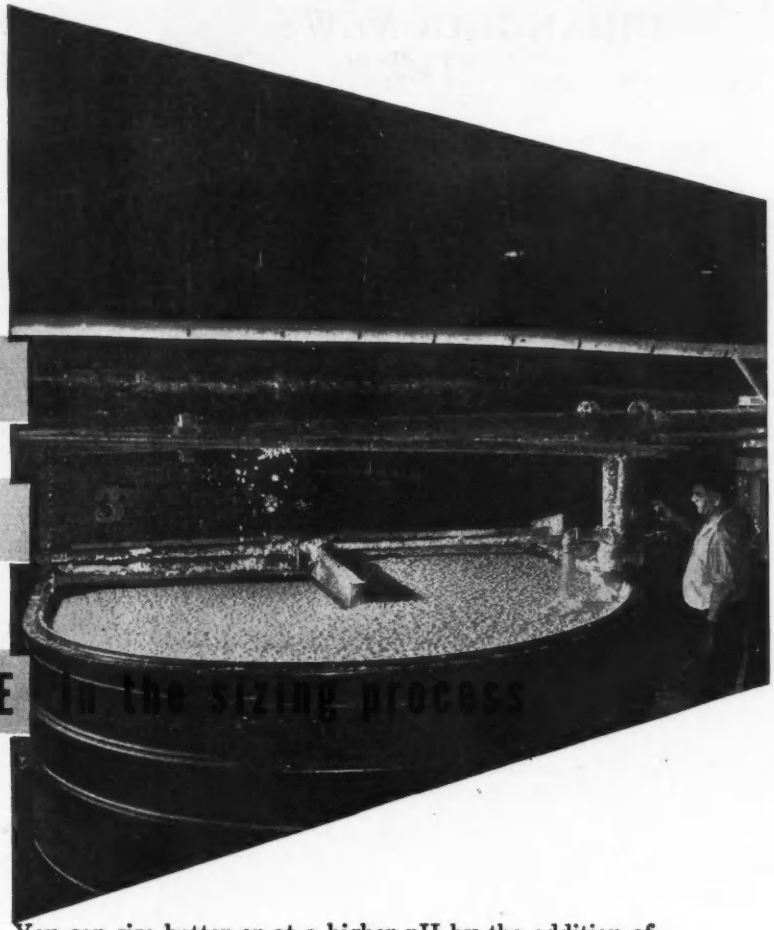
SPRINGFIELD, Mass., February 25, 1946—William P. Taylor, a former resident of Springfield, lately living in Florida, has been promoted to manager of the Springfield district of the Household Paper Products Co. Taylor has worked for the concern since 1938 and has been manager of the Cape Cod district since he left the army in 1944 after three years service.

Sherman Products Promotes Preston

NEWTON UPPER FALLS, Mass., March 4, 1946—Eugene W. Preston has been named as sales manager of the Industrial Division of Sherman Paper Products Corporation. Warren Tobecksen, previously associated with General Electric, has been appointed chief research engineer to fill the position vacated by Mr. Preston.

you get

control of pH using stable solutions of Monsanto's SODIUM ALUMINATE in the sizing process



You can size better or at a higher pH by the addition of Sodium Aluminate to your paper sizing process. The result: Less corrosion of equipment, increased paper life, and less yellowing and embrittling of the paper on aging. Also, this addition in many instances eliminates those pitch and sticking troubles at the press rolls which are caused by insufficient alumina in the furnish.

Control of pH is a basic factor in sizing.

* * * *

Salient feature of Monsanto's Sodium Aluminate is the *stability* . . . 6% solutions remain stable almost indefinitely. They can be added to the beaters or at any point in the paper making process prior to the formation of the paper web. Problems connected with the addition of Sodium Aluminate in solution form can be eliminated by using Monsanto's Sodium Aluminate.

For complete technical data, samples or information on a trial in your mill, write: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Mass.

MONSANTO CHEMICALS
SERVING INDUSTRY...WHICH SERVES MANKIND

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 9, 1946

STOCKS

	High	Low	Last
A. P. W.	8¾	8⅜	8⅜
Armstrong Cork Co.	56	52¾	55¾
Celotex Corp.	25¾	25	25⅛
Celotex Corp., pf.	21⅜	20¾	20¾
Certain-Teed Products Corp.	18¾	17⅝	18
Certain-Teed Products Corp., pf.	...	...	...
Champion Paper & Fibre Co.	48¼	45	48¼
Champion Paper & Fibre Co., pf.	113	112	113
Congoleum Nairn Co.	33½	32	33½
Container Corp. of America	44⅜	39¼	44⅜
Continental-Diamond Fibre Co.	15⅞	15¾	15⅝
Crown-Zellerbach Co.	32⅝	31½	31⅝
Crown-Zellerbach Co., pf.	108¾	107¾	107⅞
Dixie Cup Co.	44	41	44
Dixie Cup Co.—A	54½	53	53
Flintkote Co.	36¾	35⅛	36¾
Flintkote Co., pf.	114⅞	114½	114⅞
Robert Gair	9⅜	9⅛	9¼
Robert Gair, pf.	20¾	20⅛	20⅛
International Paper Co.	42½	39¾	41⅝
International Paper Co., pf.	114¾	111⅜	113½
Johns-Manville Corp.	143½	142	143¼
Johns-Manville Corp., pf.	135	135	135
Kimberly-Clark Corp.	61	61	61
Mac Andrews & Forbes	37½	36	37½
Mac Andrews & Forbes, pf.	...	...	...
Masonite Corp.	56¾	55½	56½
Mead Corp.	21¾	20⅛	21¾
Mead Corp., pf. A—6%	108	107	108
Mead Corp., pf. B—5½%	105	104½	105
National Container Corp.	25	24	24½
Paraffine Companies, Inc.	77½	76½	77½
Paraffine Companies, Inc., pf.	...	...	...
Rayonier, Inc.	23¾	23⅛	23⅜
Rayonier, Inc., pf.	38⅛	37⅝	38
Ruberoid Co.	45	44¼	45
Scott Paper Co.	56½	53	56½
Scott Paper Co., pf.	108½	107½	107½
Sutherland Paper Co.	45⅜	39	45⅜
Union Bag & Paper Corp.	24⅞	24	24⅞
United Paperboard Co.	10½	10	10
U. S. Gypsum Co.	120	115½	119
U. S. Gypsum Co., pf.	204¼	204	204
West Virginia Pulp & Paper Co.	39¼	37½	38½
West Virginia Pulp & Paper Co., pf.	114	114	114

BONDS

Abitibi Pulp & Paper Co. 5s '53	109	107¾	109
Celotex Corp. 3¾s '55	...	...	...
Certain-Teed Products Corp. 5½s '53	...	...	...
Champion Paper & Fibre Co. 3s '65	...	...	...
International Paper Co. 5s '47	103¼	102½	102½
Mead Corp. 3½s '53	...	...	...

New York Curb Exchange

High, Low and Last for Week Ending March 9, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	39½	39	39
Hummel-Ross Fibre Corp.	11¾	11½	11½
St. Regis Paper Co.	10¾	9¾	10⅛
St. Regis Paper Co., pf.	...	...	...
Taggart Corp.	9	8½	9

BONDS

American Writing Paper Co. 6s '61	103	101½	103

Scott Co. Seeks Capital

Stockholders of the Scott Paper Company will vote at the annual meeting on March 28 on proposals to increase common stock from 1,000,000 to 2,000,000 shares and to create a new preferred issue of 150,000 shares.

The company proposes to offer the additional common shares on or about April 2 to produce about $3,000,000 in capital, the offering to be made initially to common stockholders of record as of April 1, or such later date as a registration statement becomes effective, and to run about two weeks.

Proceeds would help to defray the cost of improvements and additions to plant facilities, including increased paper making and finishing equipment at the Fort Edward, N. Y., plant of a subsidiary.

The company also intends to sell about 64,115 shares of preferred stock to provide funds to retire all outstanding 29,780 shares of $4.50 preferred and 30,000 shares of $4 preferred. This stock will be issued at not less than $100 a share and carry a fixed cumulative dividend of not less than $3 nor more than $3.75 a share annually.

Rayonier Earns $916,997

Rayonier Incorporated, in its report to stockholders made public today, shows for the nine months ended January 31, 1946, consolidated net profit from operations, before depreciation, depletion and federal taxes, of $3,342,189, compared with $4,386,617 for the corresponding period of the previous fiscal year. Net profit after all charges, including taxes, was $916,997, against $1,420,261. Edward Bartsch, president, points out that operating results, particularly for the third quarter, were affected by the increased cost of wood, an unusual amount of maintenance work which had been postponed during the war period, and non-recurring expenses in connection with the Shelton, Wash., mill which was reopened during the last quarter, as well as by further wage increases granted during that quarter.

He adds that the company has elected to write off the remaining book value of plant facilities constructed during the war period under certificates of necessity. The amount of write-off applicable to this election approximates $178,000 after provision for taxes, of which $58,000 is applicable to prior years and $120,000 to the current year, but effect will not be given to this write-off prior to the statement for the fiscal year ending April 30, 1946, which statement is expected to reflect claims for refunds arising from unused excess profits tax credits equal at least to the aforementioned write-off.

The consolidated balance sheet as of January 31, 1946, shows current assets of $9,992,125, compared with current liabilities of $2,552,058, a current ratio of 3.92 to 1.

International to Call Stock

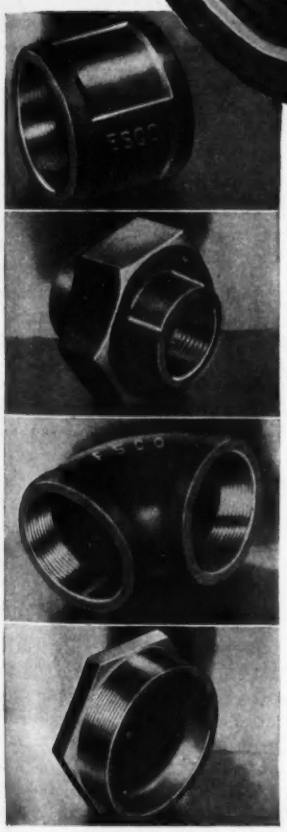
The International Paper Company has drawn by lot for redemption on April 4, 100,000 shares of 5% cumulative convertible preferred stock at $105 per share and accrued dividends. Payment will be made at the office of Bankers Trust Company, corporate trust department. The shares are convertible into common stock, on the basis of 2½ shares of common for each share of preferred, any time up to the close of business on April 3 at the stock transfer departments of Bankers Trust Co., and the First National Bank of Boston, and at the Montreal Trust Company.

Oxford Nets $1.23

The Oxford Paper Company and wholly owned subsidiaries of Rumford, Me., report for the calendar year 1945, consolidated net earnings of $974,060, equal to $1.23 a share on 380,635 shares of common stock after the regular $5 dividend on the preference stock. Earnings for 1944 on the same basis were $899,195 or $1.03 on the common. During the year the company paid dividends of $6.50 on $5 preference stock, reducing unpaid arrears to $5.75 at the end of 1945. A further reduction of 50 cents a share in the accrued was made on March 1.

Dixie Cup Profits Up

The Dixie Cup Company and subsidiaries for 1945, reports net earnings of $1,019,677, equal to $2.83 a common share, compared with $915,767, or $2.31 a share in 1944, J. E. McGiffert, president, reported to stockholders. Current assets on Dec. 31, last, were $6,227,608 and current liabilities, $1,330,664.



Lower Maintenance Costs

with *ESCO* Stainless Steel Screwed Pipe Fittings

Esco Stainless Steels have long been vital to the most economical pulp mill operation. Constant effort by Esco engineers and metallurgists bring the advantages of stainless steels to more and widened applications. Recent by comparison with other Esco developments in stainless are Esco I.P.S. screwed fittings cast in the same Esco Alloy 45 which has made its name in the pulp industry through years of service.

Esco maintains a complete stock of these stainless steel screwed pipe fittings from ⅛" to 3" diameters.

Threads are clean and true.
Sizes are exact.
Finish is smooth.
All fittings are inspected.

Other types of fittings, made to exact engineering specifications, are also available.

To get complete information about Esco *Spuncast* stainless steel pipe, tubing, screwed or flanged fittings and special stainless steel castings, see your nearest Esco representative or write us... **Our New Stainless Catalog No. 157 sent on request.**

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Expect Abitibi Plant Success

TORONTO, Ont., March 9, 1946—Bondholders of Abitibi Power and Paper Company are said to now have, either by deposit or proxy, 89 per cent of the voting power of the bonds, and expect to have their reorganization plan adopted at the meeting scheduled for March 15. After bondholders' approval, an order must be obtained from the Supreme Court under the Dominion Companies Act; then application may be made for supplementary letters patent.

With another coupon falling due on the new bonds on June 1, it is expected that an effort will be made to have the new securities ready by then. Present indications point to an active market in Abitibi securities.

Financial circles expect the new 5% bonds to prove up to their call price of $100 U. S. or $110 Canada (present quote is $107½-8¼ Canada) as interest was covered 1.88 times on the basis of 1944 earnings. Earnings for 1945 are expected to be at least as good. In view of high prices prevailing in the bond market, some financial men look for the bonds' redemption this year, by a refunding operation. Also, an estimate indicates sufficient cash will be available over the minimum of $17.5 millions of working capital required by the plan, to retire about $6 million bonds immediately. With this in prospect, many individual holders are thought likely to liquidate in view of the income tax liability attached to the bonds. A good demand is expected.

OVER 150 IMPORTANT PAPER MILLS USE CINCINNATI RUBBER COVERED ROLLS!

And there are **five** big reasons . . . Uniform density — Longer period between regrinding — Absolute conformity to specifications and—Precision grinding . . . *five big reasons* why you can count on greater dependability and longer life from Cincinnati Rubber Covered Rolls.

Send your next Roll to Cincinnati for Re-covering!

THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

Keyes to Build at Hammond

WATERVILLE, Me., March 11, 1946—Details of the Keyes Fibre Company plans to construct a new plant at Hammond, Indiana, were available this week and revealed that a purchase option on a 30-acre plot on an arterial highway out of Chicago was signed several weeks ago. Price was $7,500.

On the property, which has railroad siding, Keyes plans erection of a brick and steel structure to accommodate an anticipated 33 per cent volume increase fostered by war use of its pressed pulp products.

A new bond issue, $1,800,000 to retire a present 4½ percent first mortgage and $1,300,000 for middle-western expansion, is being prepared at 3¾ percent.

Zink Joins Hammermill

SPRINGFIELD, Mass., March 10, 1946—John D. Zink of Longmeadow, former president of the Strathmore Paper company, has joined the Hammermill Paper company of Erie, Pa., it was announced last night. Prominent in the paper industry here for more than 15 years, Zink resigned from the Strathmore presidency last month.

According to Donald S. Leslier, general manager of the Pennsylvania concern, the Longmeadow man will head a new Hammermill activity for the development, production and merchandising of additional grades of fine papers as part of the company's postwar expansion program. He will leave for Erie at once.

B-S-W to Make More Kraft

PORT ALBERNI, B. C., March 11, 1946—Bloedel, Stewart and Welch Limited, who are now engaged in construction of a new pulp mill are not planning to branch into the manufacturing of rayon. Rumors have been in effect in British Columbia that this mill would change its program and commence rayon production. This report is denied by company officials who point out that it is proposed to specialize in kraft paper production which is not suitable under the present pulp techniques for conversion to rayon.

ARMCO STAINLESS gives you the "BIG 7"

1 LESS SLIME

2 FEWER CLEAN-UPS

3 CLEANER PAPER

4 LONGER SERVICE

5 LESS BREAKAGE

6 NO CHEMICAL REACTIONS

7 GREATER OUTPUT

Equipment made of ARMCO Stainless Steels assures seven big manufacturing and selling advantages. These rustless steels are strong and hard, with a smooth surface that is easy to clean and keep clean.

Let us show you how production and profits go up the "ARMCO Stainless Way." Get in touch with your equipment fabricator, or write us. Just address The American Rolling Mill Company, 1685 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

SPECIAL-PURPOSE SHEET STEELS

STAINLESS ARMCO STEEL

The American Rolling Mill Company

Complete
STAINLESS STEEL
Cylinder Moulds

Repeated tests have proved that the use of stainless steel cylinders is a distinct advantage in chlorinated acid-bleached stock washers and deckers. Our engineers have overcome the apparent difficulties in making complete cylinder moulds from stainless steel and we are now able to supply them without delay in both Type 316 and Type 304. Rods and winding wire are obtainable in stainless steel in either round rod or our own patented triangular rod and high-winding wire construction.

Stainless steel, brass or bronze—Cheney Bigelow is equipped to build and recondition cylinder moulds in any material. For more than a century we have been serving the paper industry. Our craftsmen know their job and have the most modern equipment to work with. Recently expanded plant facilities enable us to handle a greater volume of work, and handle it quickly. The advice of our enlarged engineering staff is at your disposal without obligation.

For prompt, reliable cylinder mould service, call on Cheney Bigelow.

CHENEY BIGELOW

Fourdrinier Wires • • Dandys • • Cylinders • • Wire Cloth

CHENEY BIGELOW WIRE WORKS • 417 LIBERTY STREET • SPRINGFIELD, MASS.

Waxed Paper Group Elects

Extensive plans to broaden existing markets and to develop new sales outlets were adopted by the Waxed Paper Institute at the annual meeting of the waxed paper industry in New York City, February 27 and 28. Representatives of all waxed paper manufacturers who attended the meeting pledged their support to the program. R. A. Nash, manager of Bakery Division, Marathon Corporation, Menasha, Wisconsin, and Chairman of the Institute Merchandising Committee, reported in detail on the National Merchandising Program for the past year. This program, which began in 1945, included an industry-wide plan of promotion. He then presented an accelerated promotional program for the remainder of 1946, which will carry the waxed paper story to trade sources and consumers.

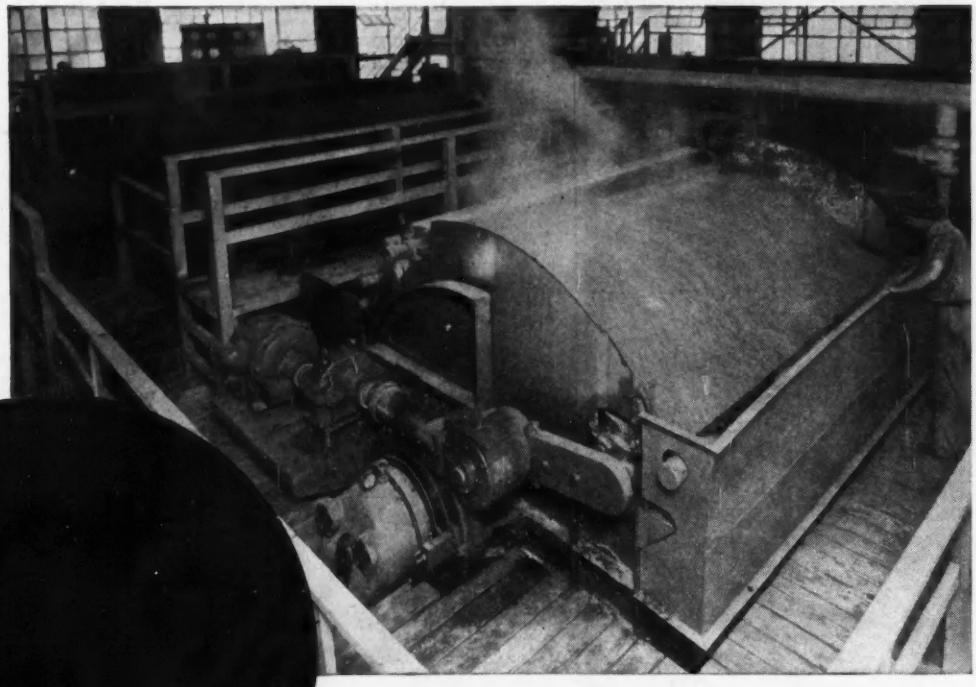
Possibility of increased prices of raw paper stock, which would affect all manufacturers of waxed paper, was discussed by R. C. McCaskey, Minerva Waxed Paper Company, Chairman of OPA Waxed Paper Industry Advisory Committee. A. F. Kletzien, Marathon Corporation, discussed the industry's statistical program, and George C. Wieman, Western Waxed Paper Company, reported on membership dues.

Election of officers was held and V. H. Wilshire, president of The Specialty Paper Company, Dayton, Ohio, was elected chairman of the Executive Committee. Karl R. Zimmer, president of Zimmer Paper Products, Indianapolis, was elected vice-chairman. Members elected to serve on the executive committee for three-year terms are: Harlan K. Snyder, Central Waxed Paper Company, Chicago; George C. Wieman, Western Waxed Paper Company; and J. E. Edelstein, Rapinwax Paper Company, Minneapolis. E. L. Berkley, President of Waxide Paper Company, Kansas City; Roy A. Nash, Marathon Corporation; and A. Southon, Vice-President of Kalamazoo Vegetable Parchment Company, Kalamazoo, are other members of the executive committee who will continue in office for the current year.

Coy Back from Navy

At the annual meeting of Coy, Disbrow & Company, Inc., Charles F. Coy, son of Robert H. Coy, founder of the company, was elected vice-president and appointed assistant general manager. Mr. Coy recently returned from the U. S. Navy where he served as an air operations officer.

SPOT CONVERSION



By operating controls of V★S Drive units one man runs brown stock washers at any desired speed in the new sulphate pulp mill of Southland Paper Mills, Inc., Lufkin, Texas.

Again RELIANCE V★S DRIVE SAVES MONEY *by converting A-c. to D-c. to provide Adjustable-Speed*

Chalk up more paper mill money-savings to the credit of V★S, the *All-electric, Adjustable-speed Drive, operating from A-c. Circuits!* At Southland Paper Mills, V★S units, installed for adjustable-speed operation of brown stock washers, have saved the cost of a separate D-c. power system. And with V★S on the job, this mill has accurate control of stock flow—needs fewer stock chests—gets better blending.

You can save from $25 to $60 per kilowatt of installed D-c. capacity through spot conversion of A-c. power the V★S way. At the same time you can step up quantity and quality of machine output through such V★S performance features as its unlimited range of stepless speed changes—its starting, stopping or reversing from nearby or remote control stations—its automatic maintenance of proper tension. Call your nearest Reliance office or write us today for the complete money-saving story of V★S Drive!

RELIANCE V★S DRIVE

ROTATING SYSTEM
(1 to 200 hp.)

ELECTRONIC SYSTEM
(1 to 5 hp.)

RELIANCE ELECTRIC & ENGINEERING CO.
1099 Ivanhoe Road • Cleveland 10, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary • Greenville • Houston
Kalamazoo • Kansas City • Knoxville • Los Angeles • Milwaukee • Minneapolis • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore. • Rockford, Ill. • St. Louis • San Francisco
Seattle • Syracuse • Tampa • Tulsa • Washington, D. C.

RELIANCE A-C D-C MOTORS *"Motor-Drive is More Than Power"*

YOU GET ALL 5
WITH READING HOISTS

In your plant every piece of handling equipment should "pay its way" through efficient, economical operation. Reading Multiple Gear Hoists do just that.

Precision built spur gears are bathed in oil. You get economical operation, faster moving loads and accurate, safe handling of materials with Reading Hoists' sturdy construction and positive action friction brakes.

Give your plant these five important hoist advantages. Sizes are available for loads of from ¼ ton to 25 tons. For full details see your distributor or write us direct, today.

Have a materials handling problem in your plant? Send for our new, complete Chain Hoist Catalog No. 60.

READING CHAIN & BLOCK CORPORATION
2113 ADAMS ST., READING, PA.
CHAIN HOISTS • ELECTRIC HOISTS
OVERHEAD TRAVELING CRANES

READING HOISTS

Howard-Aetna Merge

URBANA, Ohio, March 11, 1946—Merger of the Aetna Paper Company of Dayton, and the Howard Paper Company of Urbana, into a new company named Howard Paper Mills, Inc., has been completed. The new company will be one of the largest American makers of fine quality business and commercial papers.

Harry A. Legge of Urbana will be head of the consolidated company, with W. B. Zimmerman executive vice president, Charles F. Goodenough and K. P. Geohegan vice presidents, Eugene H. Hoffman treasurer, Joseph A. Colby secretary, and K. C. Koehler controller.

Howard Paper Mills, Inc., in association with its subsidiaries, the Maxwell Paper Co. at Franklin, and the Dayton Envelope Co. in Dayton, will continue to produce their same complete lines of business and commercial papers.

Harry A. Legge of Urbana, who succeeded the late Col. H. Maxwell Howard as president, remains head of the consolidated corporation.

Boston Trade to Dine

BOSTON, Mass., March 11, 1946—Bradford Washburn, a well known speaker, will give a talk concerning "An Alaskan Adventure — Mt. Hayes," with colored pictures at the Sixtieth Anniversary Banquet and Annual Meeting of the Boston Paper Trade Association, March 20, in the Roof Ball Room of the Parker House. The membership committee has approved the following applications for admission to membership: Regular — Cornelius F. Fay, H. J. Dowd Co., Inc., Cambridge, Mass. Limited — Roger J. Clapp, Linton Bros. and Co., Fitchburg, Mass., and Edson S. Dunbar, Crocker McElwain Co., Holyoke, Mass.

Price Bros. Plan Bond Issue

MONTREAL, Que., March 11, 1946 According to the financial press here, Price Brothers and Company Ltd., one of the largest producers of newsprint and pulp in Canada, is planning a bond refunding operation. The company's funded debt at the close of 1944 amounted to $11,700,000 of 5% series first mortgage bonds due 1957, of which $618,500 was held by the company as an investment. The bonds are callable at 103 to March 1, 1946.

The refunding now forecast would effect a substantial saving in interest charges and would be of great benefit to the holders of common stock in the company.

Package Group Sees Growth

"Although the annual sale of flexible packaging stands at $100,000,000 we have only scratched the surface. I fully anticipate that we will reach $250,000,000 within a decade," said Edward M. Rickel, chairman of the public relations committee, addressing the annual sales convention of the Flexible Packaging Institute in New York at the Biltmore, February 28. Gordon H. Friend, president of the Institute, told members of the industry that a great deal of the success of the flexible packaging industry was due to the close bond between fabricators and their suppliers.

Speaking for the suppliers, Dr. Frank Campins, manager of the industrial research department of National Adhesives, told the Institute that no limitations will exist for the flexible container of the future. "You are leaving behind the word 'bag' and 'envelope' and taking on the more responsible and demanding term 'container,'" he added. "You are shaking yourself free of many factors, one of them the shape factor. With your flexible container you can package literally any product with an appropriate shape." "You are tending, as an industry, to widen the range of materials from which you fabricate flexible containers."

A. V. Shannon, of Westfield River Paper Company, also representing the suppliers, told the group: "It is your Flexible Packaging Institute that has found the uses of glassine paper. Recently we have been trying to find uses in addition to these and to project these uses into fields not yet sold."

Christopher W. Browne, editor of Modern Packaging, projected the viewpoint of the package buyer at the afternoon session of the Institute.

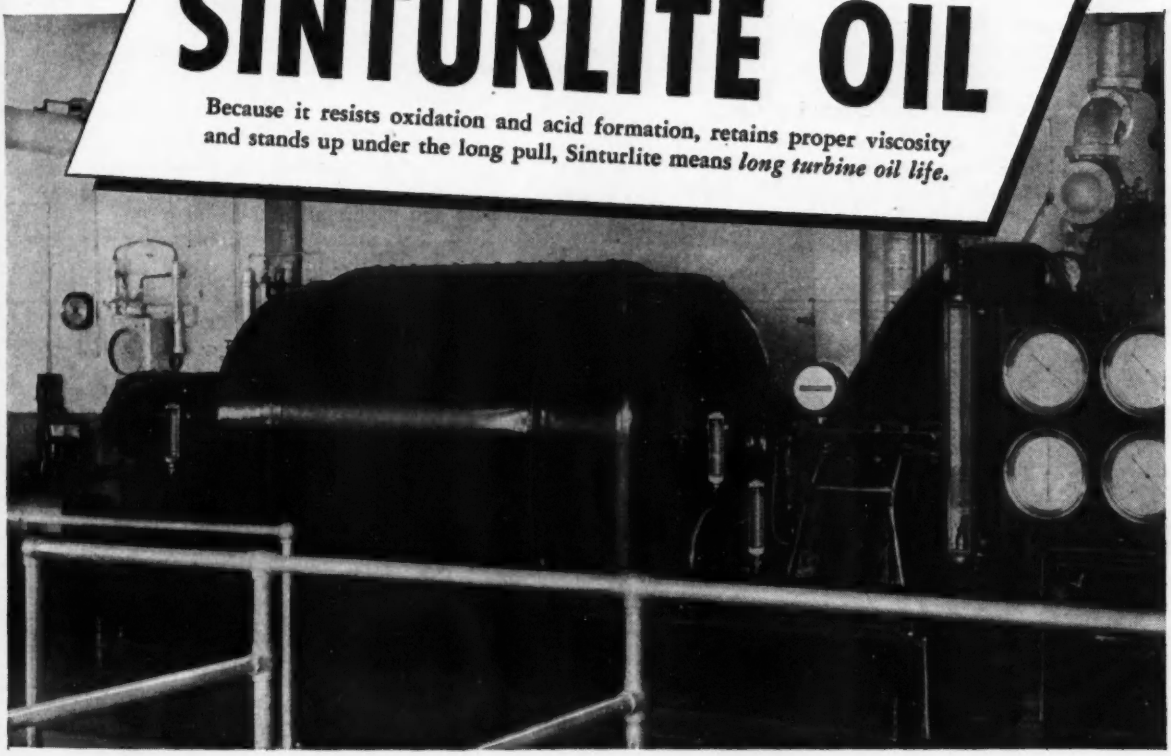
Members of the Institute saw a graphic chart review of advertising and promotional accomplishments for 1945. Stanley B. Wildrick of Wildrick & Miller, while presenting this report, pointed out that requests for help in solving packaging problems had been received from all over the United States, Canada, Europe, India, South Africa and South America. Mr. Wildrick also told of the widespread interest shown in the recently publicized photographs which depict new developments for the packaging of food, drugs, chemicals and hardware by the flexible packaging industry.

Another speaker was Dr. Charles F. Roos, prominent New York economist, who discussed the economic aspects of the over-all picture for the flexible packaging industry.

For L-O-N-G-E-R TURBINE OIL LIFE *in the grueling grind*

SINTURLITE OIL

Because it resists oxidation and acid formation, retains proper viscosity and stands up under the long pull, Sinturlite means *long turbine oil life.*



HIGH SPEED turbines . . . operated continuously, day and night, month in and month out, meet a grueling grind. For proper lubrication, turbine oil must be constant in quality, capable of extended life. Sinturlite is made specially to stand up under all conditions in this long pull.

Non-foaming, non-corrosive Sinturlite provides lubrication that offers protection against expensive shutdown with interrupted power supply. Try Sinturlite for turbine lubrication problems.

SINCLAIR INDUSTRIAL OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

Seen at the Chemical Show

American Resinous Chemicals Corp.

The exhibit of the American Resinous Chemicals Corporation was a comprehensive display, showing the applications of resins and elastomers for the coating, laminating and impregnation of papers and textiles.

The following men were in attendance at the booth: William L. Abramowitz, Ashworth N. Stull, Saul Palais, Samuel Palais, M. A. Kimmel, Sidney J. Baum, Jack Lichman, Irving Kusinitz and Miss Jessie M. Smith.

Combustion Engineering Co.

The Combustion Engineering Company, which specializes in black liquor systems, had no exhibit. The exhibit of the Raymond Pulverizing Division of the company included the Raymond roller mill for the preparation of air-floated clays.

Representatives in attendance included A. R. Jenny, G. E. Birmingham, Gus Frangquist, S. P. Kanowitz and W. A. Koren.

Cooper Alloy Foundry Co.

The exhibit of the Cooper Alloy Foundry Company featured the concern's new lines of certified stainless steel valves and fittings.

In attendance were H. A. Cooper, president, J. Victorine, S. Zolin, E. Barclay Powell and Andrew Weckerly.

The Dicalite Co.

Exhibits of The Dicalite Company consisted of diatomaceous materials. The acicular and elongated diatoms predominate in the structure of the crude dicalite material and have been preserved to provide definite advantages in materials for filtering, fillers, pigments and other products. On display was Dicalite "BP5" prepared for use as a paper filler.

General Electric Co.

The exhibit of the General Electric Company featured several products.

G-E's new Tri-Clad, totally-enclosed, fan-cooled motor was introduced. This is particularly adaptable to the chemical industries, since it can be used outdoors, in hazardous areas, on dusty or dirty jobs, and in corrosive atmospheres. A 7-foot papier-maché model of the motor showed its design and construction.

Another G-E item was the leak detector, capable of locating leaks in such things as pipe lines. This will also be operating.

International Nickel Co.

The International Nickel Company exhibit featured among others, the following items of interest to the pulp and papermaker:

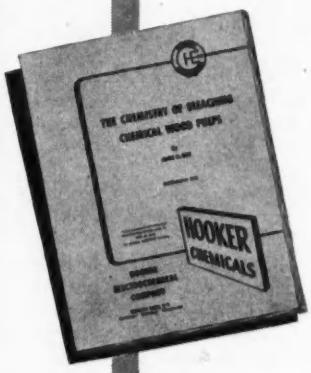
Monel-covered press roll; Monel slotted screen plate; "K" Monel doctor blade; Monel, nickel, In-

APPLETON
· SUPER ·
CALENDER
ROLLS
SUPER-FINISHING EQUIPMENT FOR EVERY REQUIREMENT
APPLETON filled rolls and super-calenders for all standard paper finishing. APPLETON super-calenders and special rolls for high-speed finishing of machine coated papers. Laboratory calenders for control and research. Special finishing equipment.
THE APPLETON MACHINE COMPANY
APPLETON · WISCONSIN
Eastern Sales Representatives —
CASTLE & OVERTON, INC., 630 Fifth Avenue, New York City

Knowing Why—Helps Make Whiter and Stronger Pulps

Through an understanding of the composition of the pulps and of the chemical reactions by which the coloring matter and other undesired components may be removed, the technique of producing whiter and stronger pulps has been advanced. Hooker Bulletin 211 "The Chemistry of Bleaching Chemical Wood Pulps" explains the reactions involved in the bleaching of chemical wood pulps.

SOME OF THE SECTION HEADINGS ARE:



I. ***Changes in composition as wood substance is progressively purified.***

II. ***Chemical properties of chlorine in relation to process of bleaching.***

III. ***Single stage Hypochlorite bleaching.***

IV. ***Multi-stage bleaching.***

V. ***Chlorination.***

VI. ***Alkaline treatment of chlorinated pulps.***

VII. ***Reactions with hypochlorite.***

Diagrams, graphs and equations help to make this Bulletin interesting and valuable. A copy will be sent you when requested on your letterhead.

Other Bulletins prepared by our Technical Staff are equally informative and instructive. All are published with the aim of improving processes, effecting economies and raising quality. Send for the list of Hooker Pulp and Paper Bulletins.

Hooker chemists have been cooperating with the pulp and paper industry for years. Many of the advances in pulp and paper making are the results of this cooperative research. That's why Hooker knows, as do you, the importance of high quality chemicals. And that's why you can put your trust in the consistent high quality of every shipment of Hooker Chlorine, Caustic Soda, and other Hooker Chemicals.

HOOKER ELECTROCHEMICAL COMPANY

6 Union Street Niagara Falls, N. Y.

New York, N. Y. Tacoma, Wash.

Wilmington, Calif.

HOOKER CHEMICALS

Caustic Soda **Chlorine** **Muriatic Acid** **Sodium Sulfide** 8441

comel wire cloth; Monel jordan fillings; Monel fabricated valves and fittings; Monel-lined plywood; Monel accessories—nails, screws, bolts, nuts, etc.

Koppers Company

The Koppers Company, Inc., exhibit featured tar bases or pyridine bases which are coming into greater prominence, and in which there have been great advances in recent years. These included pyridine, alpha picoline, mixed picolines, 2, 4, lutine, quinoline, widerboiling fractions of tar bases both above and below quinoline and isoquinoline.

There was also a large display on ammonium thiocyanate, as well as other Koppers products such as creosote, industrial pitches, roofing and waterproofing materials, road tars, Plastipitch Protected Metal roofing and siding and Pitchmastic flooring.

Koppers representatives in attendance were: J. N. Forker, R. C. Wickersham, T. C. Keeling, Jr., R. H. McClintic, J. H. Carpenter, C. R. Willetts, Dr. G. Thiessen, Dr. J. N. Roche, Dr. G. D. Bieber, R. S. Rhodes, Dr. J. O'Brochta, R. M. Maxwell, H. D. Cooper, W. M. Lee, Harry Kjellman, H. W. Wood, R. O. Austin, J. D. Saylor and Ralph Winslow.

%Proportioneers, Inc.

The exhibit of %Proportioneers, Inc.%, Providence, R I., was an interesting display of automatic treating, diluting, blending and sampling units in full operation, arranged so that the visitor can control and adjust the equipment.

One installation features the Chronoflo-controlled Adjust-O-Feeder, complete with Venturi tube, Chronoflo transmitter, with feeding and flushing system, as used for boiler water conditioning and general water treating. In a second display is a complete Treet-O-Control installation with Meter, Treet-Units and an Electro Control which operates remote proportioning devices in response to varying flow. This equipment is applicable to a number of process operations, including chloramine treatment and general water supply.

Representatives present included Rudy P. Lowe, Herbert E. Hollberg and Philip V. Crowther.

Socony-Vacuum Oil Co.

Many new "SV process" petroleum products, were featured at the exhibit of the Socony-Vacuum Oil Company. In papermaking was "Ceremuls," to improve sizing and impart softness in beater-sizing; adapted also for top sizing to add water resistance and improve finish and to also provide water absorbency, improve softness and wetting properties. Also displayed were special solvents for pitch removal and special oils for reducing foam in papermaking. The "Product 2305" was also shown for use in laminating, to provide flexible moisture-proof bond; fully refined waxes for producing wet waxed papers; waxes for dry waxed papers; Prorex oils to produce odorless food wraps; microcrystalline waxes to improve heat sealing properties; petrosenes, as impregnants to resist grease penetration; Petrolatums to produce colorless bloodproof papers, and "Sovaloid C", a resin plasticizer for softening resins used in paper coatings.

Union Paper & Bag Co.

A large line of paper bags for industrial use was exhibited by the Union Bag and Paper Company. These included multi-wall bags for the packaging and shipment of chemicals, cement, rock wool and many other products.

Foster Wheeler Corp.

The exhibit of the Foster Wheeler Corporation featured power plant equipment, steam jet vacuum pumps, combustion control, steam accumulators, pulverized fuel firing, feed water heaters, superheaters, evaporators and other equipment. The processing equipment included digester blow systems, heat exchangers, a digester heater system, etc. On display was a Dowthem electric vaporizer and samples of stainless steel bellows expansion joints.

Norton Co.

The exhibit of the Norton Company included a full line of abrasives, laboratory ware and "Norbide", a material next in hardness to a diamond. Silicon carbide "Crystolon" bricks, for use in preventing clinkering in boiler walls, small crucibles and laboratory ware were shown. A new line of crucibles and tubes formed of "Thoria" and "Beryllia", pure oxides, are capable of withstanding extremely high temperatures.

Representatives present included James Perry, Russell L. Peck, I. E. Taylor, E. A. Fischer, E. Hurst, Robert Kirkpatrick and K. H. Bird.

National Lead Co.

The exhibit of the National Lead Company included a display of the many shapes of lead used in the paper and pulp industry, in acid concentrating plants, acid separating plants, lead bars, bearings, bends, special lead lined chemical apparatus, lead lined coils and lead covered copper and steel, homogeneous bonded lead, lead covered equipment, lead wire, pipe, sheet lead, lead lined and covered tank connections and valves of united hard lead and lead and tin-lined.

In attendance were H. J. Irvin, C. W. Gesregan, J. A. Martino, J. H. Sabo, E. Mentius, E. R. Dondorf and Geo. H. Checkley.

Worthington Pump & Mach. Corp.

The exhibit of the Worthington Pump and Machinery Corporation featured chemical mixing tanks, the Worthington speed selector, Multi-V Drives, and flanged gate valves. Also on display was a 3-Stage high vacuum steam jet ejector.

In attendance were W. E. Pratt, T. B. Hiestand, Chas. Kohl, W. F. Geiss and S. M. Dunham.

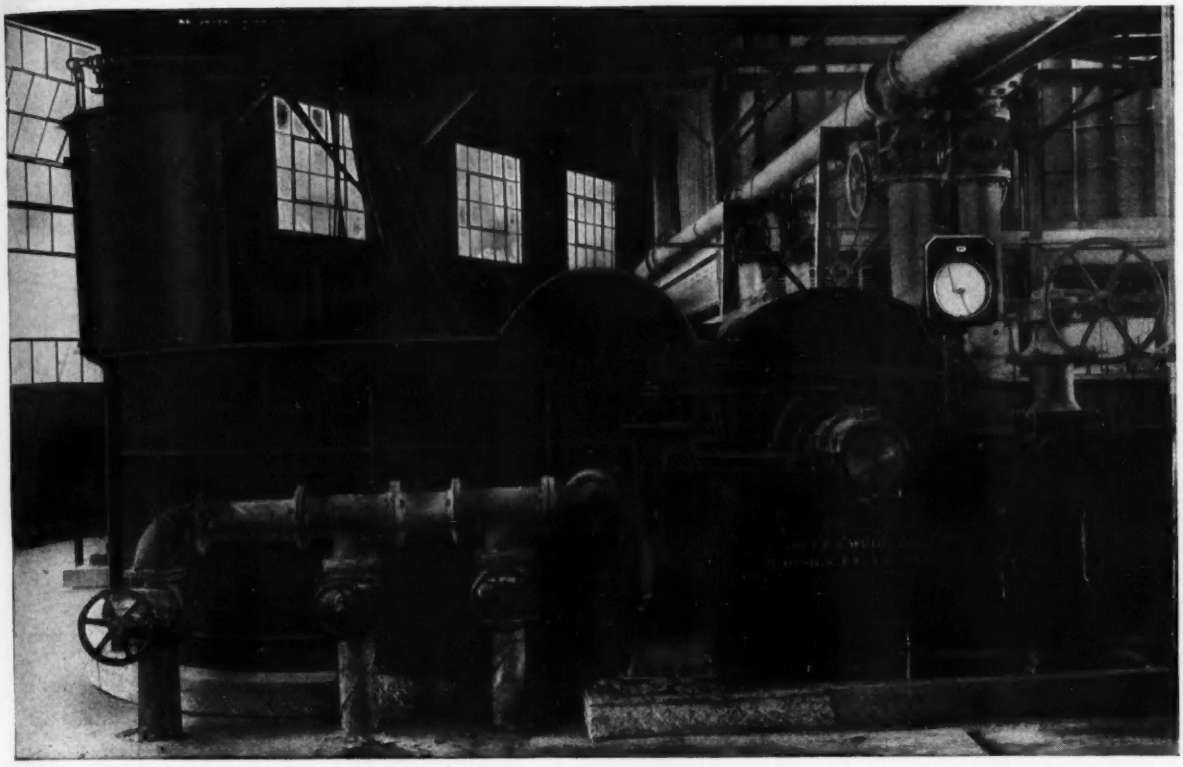
Wright-Hibbard Truck Co.

Three capacities of a new truck were featured by the Wright-Hibbard Industrial Electric Truck Company. Known as the new "Loadmaster," Model 300 and 301, with center control, of the fork type and in three sizes from 2,000, 3,000 to 4,000 pound capacities. High lift and low lift types of platform trucks were also shown.

Present were R. F. Hibbard, M. B. Sebring, H. M. King, and R. L. Montgomery of the Chicago office.

Dorr Co.

The featured piece of equipment by the Dorr Company was a Dorr De-Ionization unit of commercial size for high purity water. Large photographs showed the company's many installations of water treatment and chemical plant installations.



We even have an instrument that speaks Spanish!

WE MAKE all kinds of instruments that will do a lot of wonderful things. And we're not altogether kidding when we claim this one speaks Spanish. It's the Taylor Beater Roll Pressure Recorder that helped teach inexperienced Cuban workers how to turn out uniform stock from bagasse in one of their paper mills. Just listen to what the beater manufacturer wrote after visiting the plant in operation.

"The new beaters, equipped with the Taylor Beater Roll Pressure Recorders received the enthusiastic approval of the management and the operators, and made it possible to process stock to a much higher degree of uniformity than had ever been possible before. The instruments were especially valuable in this case because of the type of help available and their complete lack of background in work of that kind."

Yes, we helped unskilled Cubans make good paper, but better yet we'd like to help your *skilled* workers make *better* paper. Roll pressures adjusted by hand (even an experienced one) may vary as much as 30%. And you well know that this means costly losses in stock uniformity and beating time and a considerable jump in your power consumption.

You can be sure of exactly the stock characteristics you want if your beaters are equipped with Taylor Beater Roll Pressure Recorders. Call your Taylor Field Engineer for the full story or write Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

Paper Institute Adds Staff Members

The Institute of Paper Chemistry, Appleton, has added six members to its staff, according to a recent announcement by Westbrook Steele, executive director.

C. B. Sitterson, Jr., joined the administrative staff as of March 1. He is a graduate of the United States Military Academy, class of 1940. Since then he has been an engineer in the general engineering and consulting laboratory of the General Electric Company, Schenectady, N. Y.

F. A. Buringham, formerly of the research department of the Brown Company, Berlin, N. Y., soon will join the microscopy group. He received his B. S. and Chemical Engineering degrees from the University of Minnesota, and served during World War I with the chemical warfare service, being stationed at the shell-loading plant of the American University Experiment Station, Washington, D. C.

Since 1919 he has been with the Brown Company, where, in addition to his work on microscopy and photo-micrography, he has been interested in general pulping problems, including the manufacture for viscose and rayon. He is chairman of the microscopy committee of the Technical Association of the Pulp and Paper Industry.

Charles J. Lingelbach, Jr., who has recently joined the container section of the Institute, received his B. S. degree from the School of Mines and Technology, Houghton, Mich. He served in the Army Air Corps with the rank of lieutenant colonel and was in the African and Italian campaigns as technical inspector and aircraft maintenance officer. At the Institute he will act as field engineer for the container section and his work will relate to the analysis and classification of hazards encountered in the transportation, handling, and storage of commodities packed in fiberboard containers.

The physics group of the institute has recently added to its number Dr. R. Douglas Rawcliffe, who received his doctorate from the University of Illinois. Shortly after his graduation, he joined the staff of the radiation laboratory at the Massachusetts Institute of Technology, Cambridge, Mass., where, during the war years, he was engaged in development work in radar and electronics. At the institute, he will carry on the instruction in the field of optics and general research in the field of physics and its application to the papermaking industry.

Also joining the physics group is Robert D. Rae, who received his B. S. degree in mechanical engineering from Iowa State college. Prior to the war he was senior test engineer for the Le Roi company of Milwaukee. During the war he was a major in the United States Army corps of engineers, serving as executive and operations officer of a combat engineer battalion. At the institute his function will be that of instrument design engineer; he will be associated with the various instrumentation programs of the institute.

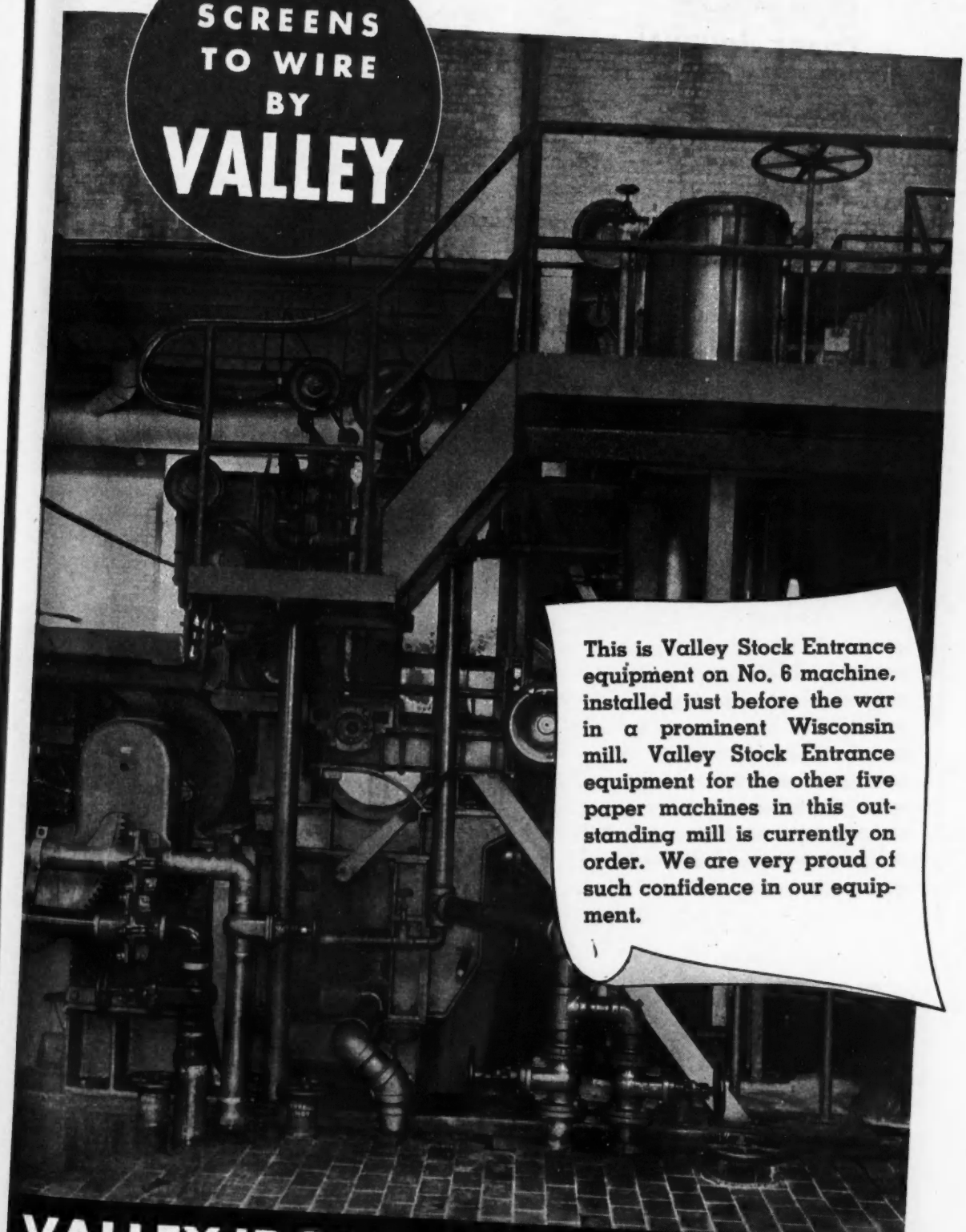
Thomas B. Wadsworth, Appleton, Wis., became controller as of Jan. 1, 1946. He comes to the institute from the Wisconsin Telephone company, where for many years he was district commercial supervisor. As controller, Mr. Wadsworth's responsibilities include supervision of the business activities of the institute, accounting procedures, operation of buildings and grounds, and general stewardship of property.

FOR SALE

2—#2-A Bird Screens
1—#1 Bird Screen
6—Impco Pulp Screens
2—N & W Mammoth Jr. Jordans
1—E. D. Jones Imperial Jordan
5—N & W Mammoth Jordans
1—Jones Imperial Jordan
2—Black-Clawson #2 Jordans
2—Black-Clawson #3 Jordans
1—#2 Dillon Jordan
6—Black-Clawson vats and molds 36 x 104
1—3-cylinder Lancaster washer
1—L-7 Nash vacuum pump and motor
1—#4 Nash vacuum pump
1—#3 Nash vacuum pump
2—14 x 14 x 16 Erie Ball variable speed engines
1—15 x 15 x 16 Ames variable speed engines
1—11 x 15 Chandler Taylor variable speed engine
1—12 x 14 Brownell variable speed engine
2—7 x 16 Beloit duplex stuff pumps
1—8 x 18 Shartle single plunger stuff pump
1—8 x 18 Shartle triplex stuff pump
1—600 Ton Dunning & Boschert hydraulic vertical press with pump
1—600 Ton Southworth hydraulic vertical press with accumulator and pumps

SHARTLE BROS. MACHINE CO,
Middletown, Ohio M-21

FROM SCREENS TO WIRE BY VALLEY



This is Valley Stock Entrance equipment on No. 6 machine, installed just before the war in a prominent Wisconsin mill. Valley Stock Entrance equipment for the other five paper machines in this outstanding mill is currently on order. We are very proud of such confidence in our equipment.

VALLEY IRON WORKS CO. • APPLETON WISCONSIN

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
W. L. Cook, Editor

HIGH COST OF LOW PRICES

Strong economic arguments for a general and rapid price advance were presented before the Flexible Packaging Institute during convention week in New York. Members of this branch of the paper industry, as practically every member of every other division of the paper field, are met daily with questions about immediate and distant prospects, and because the problem is basically as broad and as far-reaching as the economic life of the Nation itself, they sought a broad answer to the question for their own guidance. The prospect, they discovered, is closely linked with that of price movements; the remedy, they were told, lies not in mushroom expansions that might follow upward price movements, but in the reduction of excess purchasing power that such movements would produce.

Their authority for this point of view is Dr. Charles F. Roos of the Econometrics Institute, who traced for his audience a history of relative production rates from figures of the Bureau of Labor Statistics, United States Department of Labor. The present economic situation in the United States, he explained, is characterized by a demand for all kinds of goods which by far exceeds available supplies. This demand is caused by the war-created excess of purchasing power in the hands of consumers over goods on the market at present prices. Moreover, the present rate of addition to purchasing power continues to exceed the rate of addition to goods at present prices. This excess arises chiefly from heavy spending by industry for equipment which will not produce consumer goods until 1947 or 1948.

The capital goods expenditures in 1946 will produce excessive purchasing power amounting to twenty billion dollars or more. To this must be added five billion for war spending, three billion in demobilization bonuses and educational contributions, one billion in subsidies, and three billion for building process inventories in the consumer goods industries. There is, in short, an excess purchasing power of about thirty-two billion dollars, not related to production of goods and services, which will be bidding for goods and services in the market in 1946.

By 1947, he predicted, this inflationary gap may be reduced to twenty billion, but a balance is not expected to be reached before 1948.

Price ceilings, especially when applied in an unintegrated and haphazard manner, inevitably reduce supply by preventing price increases which would stimulate and increase production according to the pattern of demand. They also lead to maladjustments because they tend to stimulate the production of luxury goods which is less strictly regulated and remains profitable while the production of more urgently needed goods is held down by stringent price ceilings. Today price ceilings for many goods are so low as to permit only the most efficient manufacturers to produce.

There is no effective measure against inflation except reducing purchasing power in the hands of consumers and increasing production of goods. O.P.A. is retarding the production of goods while on the other hand the President's wage price policy increases the purchasing power in the hands of consumers. Reducing purchasing power in the hands of consumers means mainly reducing the income of those who rather than save it will spend it immediately, that is of the lower income groups. The government did not find this politically feasible. It preferred to embark on a policy of actually increasing purchasing power in the hands of consumers despite the excess of existing purchasing power over goods at present prices.

The settlement of the steel strike sounded an official note for the race of rising prices. From steel to automobiles, electrical appliances, slaughter houses, etc. all the way down the line increased costs will bring about higher prices and of course the coal miners are also in a position to obtain at present a considerable wage rise which in turn will increase the cost of all coal consuming industries.

On the basis of these general considerations and in view of a number of special factors, such as shortages due in some industries to a lack of capacity rather than inadequate ceilings, prices for industrial raw materials may be expected to advance about 8% by June 1946. Prices for manufactured products may be expected to advance about 6% by this date. If the price control act is not renewed, prices will advance another 6% during the balance of 1946 and, under pressure of additional wage increases of 8-10% a further increase of about 5% may be expected in 1946. If the price control act is renewed in June, 1946, and abandoned in 1947, price increases of about 6% instead of 5% may be expected at that time and, in consequence of further wage increases, additional price increases of 4-5% may be expected to take place in the first half of 1948.

What is needed today, in the absence of increased taxes upon individuals to reduce purchasing power while goods are not available, is a general and rapid price advance. Such an advance would have the following beneficial effects. It would reduce consumer purchasing power, in effect, by making the available dollars be claims to fewer goods than formerly. It would give industry high profits and thus make available the funds needed for subsequent industrial expansion. Because about 38% of these profits would be paid out to the federal government in taxes, such a price increase would increase federal revenue and aid in balancing the budget and debt reduction.

OPA Ups Binders Board Ceiling

WASHINGTON, D. C., March 13, 1946—An increase averaging $6 a ton has been allowed in manufacturers' ceiling prices for binders board, used chiefly for book binding, the Office of Price Administration announced this week. The increase, effective March 12, 1946, has been granted to bring manufacturers' earnings up to their 1936-39 level and is mandatory under the Price Control Act.

OPA said that, although there are no price ceilings on books, little or no increase is anticipated in back prices as a result of this action because binders board represents an insignificant part of book costs.

The new ceilings, uniform for the entire industry, are $90 a ton, delivered, on shipments to New York, and $95 a ton, delivered, on shipments to Chicago.

On deliveries to other points, the ceilings will be $88 a ton, f.o.b. mill, on shipments from New Jersey, Pennsylvania and Connecticut, and $91.50 a ton, f.o.b. mill, on shipments from any other state.

Camp Scale to Rise

FRANKLIN, Va., March 13, 1946—Wage increases varying from 20 to 45 cents per hour will go into effect in the Paper Division of the Camp Manufacturing Company as soon as sufficient manpower is available to put the plant on a 40-hour weekly schedule according to representatives of the three American Federation of Labor unions which have just concluded contract negotiations with Mr. Hugh Camp, Vice President and General Manager of the firm.

The new rate for common labor has been established at 75 cents per hour, and for mechanics a rate of $1.46 per hour has been approved. Production workers will receive corresponding increases. All rates, both semi-skilled and skilled, now conform to the rates prevailing in the kraft paper industry in the Southern states. This was the second contract negotiated by the company and the unions in this plant.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
Jan. 26	94.5	Jan. 27	88.4
Feb. 2	101.5	Feb. 3	88.8
Feb. 9	99.7	Feb. 10	90.1
Feb. 16	95.0	Feb. 17	91.0
Feb. 23	98.0	Feb. 24	89.7
Mar. 2	*101.8*	Mar 3	89.3

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	*98.4*											

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	78.5	87.1	87.8	104.0	88.2	88.4	87.9	*96.2*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

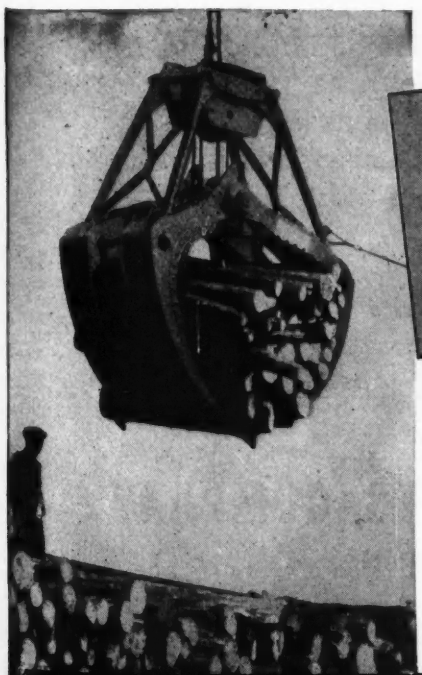
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Current Weeks—1946		Corresponding Weeks—1945	
Jan. 26	94	Jan. 27	95
Feb. 2	95	Feb. 3	92
Feb. 9	97	Feb. 10	93
Feb. 16	94	Feb. 17	93
Feb. 23	97	Feb. 24	97
Mar. 2	*98*	Mar. 3	96

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	83	93
1946	90	*97*											

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.



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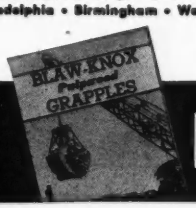

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Use of Paperboard As A Sorptive Material In Protective Packaging*

By R. C. Rietz[1] and L. O. Anderson[1]

Abstract

The most effective packaging method for metal parts that corrode easily uses a desiccant to maintain a low relative humidity within the package and an impervious moisture-vapor barrier to enclose the desiccant and the item.

A less exacting packaging method for metal parts that are less intricate uses a corrosion preventive compound on the item and the whole enclosed within a water barrier. This is called a conforming pack because the package shape conforms roughly to the shape of the item. When a paperboard container houses the preservatively treated part and the water barrier encloses the container, the pack is called nonconforming. The nonconforming pack, in the early part of its life, approaches the efficiency of the packaging method that requires desiccants.

Laboratory exposure tests show that the nonconforming pack is consistently superior to the conforming pack regardless of whether the water barrier has a low or a high transmission rate. Even with a ruptured water barrier the nonconforming pack showed less corrosion on the packed item than the conforming pack with the barrier intact. The results are interpreted to mean that the paperboard in the nonconforming pack acts as a hygroscopic material and controls the formation of free water on the packaged item to such an extent that the preservative coating is not deteriorated and the development of corrosion on the packaged metal part is reduced.

Protective packaging techniques were considerably improved during the war period, because of the need for greater assurance that the armed forces would receive serviceable equipment and replacement parts. The objectives of protective packaging were clearly defined during this period and packaging methods and packaging materials were developed at the Forest Products Laboratory and elsewhere. The method II pack employing an impervious moisture vapor barrier and a desiccant to provide corrosion control by the maintenance of a low relative humidity within the pack has received its due share of publicity. Another method of packaging was developed during the war period which can well be given considerable scrutiny, however, because of the promise that it has for postwar packaging. This is method IA pack.

Classification of Protective Packaging Methods

In order to give the method IA packaging technique its due recognition, a review of all the various protective packaging methods successfully used for military packaging is warranted. These accepted packaging classifications are method O, method I, method IA, and method II. Each classification is basically a definition of the method used to gain corrosion control.

In method O packaging, paints, ceramics, metal plating, or any one of a number of metal coatings or treatments provides the corrosion protection required and the packaging materials employed are selected because of the mechanical protection they afford.

In method I packaging, reliance is placed on a corrosion-preventive compound to provide the corrosion control needed and on the packaging material to keep the corrosion-preventive compound where it belongs. This method of packaging is characterized by the use of noncorrosive greaseproof wrappers.

The method IA packaging technique is used when the corrosion-preventive compound on the critical item or surfaces definitely needs help to enable it to do its duty. The packaging materials not only must keep the preservative compound where it belongs, but in addition they must keep out water and corrosive atmospheres. Both greaseproof wrappers and water barriers are used but the use of a water barrier characterizes this method of packaging.

The method II pack finds its field of usefulness when the item or part being packed cannot be satisfactorily treated with a corrosion-preventive compound. The principal packaging material used must keep moisture vapor out. Thus, an impervious moisture-vapor barrier and the use of desiccants characterize this type of pack.

War Performance of the Method IA-2 Pack

The method IA-2 pack, is a nonconforming IA pack. By nonconforming is meant that the water barrier is usually placed around the unit container rather than around the part or item as is done in the method IA-1 or the so-called conforming pack. Early studies indicated that the expansion and contraction of the trapped air within a method IA-2 pack, because

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Engineers, Forest Products Laboratory[2], Forest Service, United States Department of Agriculture.

[2] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

of temperature changes, would eventually result in the failure of the water barrier. Thus, the conforming method IA-1 pack was recommended as the more desirable practice where the nature of the item permitted. Field experience indicated that this pack was not performing according to expectations whereas the nonconforming pack was giving superior performance in spite of the entrapment of air within the package.

This called for a check of field experience against laboratory tests to determine, if possible, the causes of such contradictory package performance. Laboratory studies have confirmed field experience in that the method IA-1, or conforming pack, did not provide protection so good as the method IA-2, or nonconforming pack. The next problem was to find out why.

Field experience with method II packaging developed an idea which constitutes a plausible explanation for the superiority of the IA-2 pack as compared with the IA-1 pack. Experience with method II packaging indicated that under the best of conditions the closures of the moisture-vapor barriers were not always satisfactory. It has been said that as high as 10% of all method II packs were improperly closed, yet, few of the services reported packaging failures in a quantity that could be considered as alarming and the unsatisfactory reports certainly did not balance the number of estimated unsatisfactory barrier closures. It was concluded, therefore, that corrosion control in method II packs was being gained by some other method than by the maintenance of a low relative humidity as infiltration of moisture through open seals or tears in the barrier would soon establish atmospheric conditions within the barrier quite similar to that of storage.

The argument was advanced that the spent desiccant or any other hygroscopic material within the pack acted as a sorptive material with changes in exposure temperatures so that condensation of water on the metallic item or part was prevented or was materially reduced. The idea was based on the assumption that if a film of free water can be prevented from forming on a corrosible part a decided step has been taken in the prevention of serious corrosion.

Although method IA packs do not contain desiccants, the IA-2 pack does contain sorptive material in the form of paperboard used for cartonizing the item. It is believed that the presence of this sorptive material accounts for the superior performance of this method of packaging.

Action of Sorptive Materials in Protective Packaging

The success of the method II and the IA-2 pack, it is believed, demonstrates that the presence of sorptive material is effective in reducing deterioration due to corrosion, particularly when the barriers are ruptured. It is essential however, that the mechanism whereby this control is gained be established and proven to the satisfaction of the packaging engineer if the principle is to be exploited.

Activated dehydrants such as silica gel rely upon their affinity for moisture to maintain a low relative humidity within a package and thereby control the conditions under which corrosion may develop. Desiccants, however, adsorb greater quantities of water per unit change at a low rather than at a high relative humidity. On the other hand, a hygroscopic material, such as wood fiber in its many different forms, adsorbs a small quantity of water with a unit change in relative humidity at the low values but a much greater quantity per unit change when exposed to a relative humidity in excess of 75%. This characteristic of hygroscopic materials to adsorb more moisture per unit change in relative humidity at high values than at low is a property believed to be highly effective in packaging. This property distinguishes sorptive materials from desiccants.

Assuming that the water barrier in a method IA-2 pack has been ruptured, the mean relative humidity within the pack is expected to be the same as that of the exposure conditions of storage. In an unheated warehouse, changes in temperature are apt to result in a condition conducive to the condensation of vapor on the metallic item or part within the pack. As the temperature drops the relative humidity within the package increases but the hygroscopic sorptive material tends to adsorb the moisture and the higher the surrounding relative humidity, the more moisture the sorptive material will adsorb. Condensation of moisture on the metallic part is not apt to take place during this period as it remains at or is warmer than the surrounding atmosphere or packaging material. As the temperature of the storage condition increases, the packaging material and the atmosphere within the package also increase in temperature but the rate of temperature rise of the metallic part is apt to lag because of the insulating effect of the packaging material. Thus the metallic part is apt to act as a condenser even though the air temperature is rising. This actually happens in method I packs and the corrosion-preventive compound must tolerate a considerable amount of free water or serious corrosion takes place. Under the same conditions the sorptive material in a method IA-2 pack has adsorbed the moisture made available by an increase in relative humidity and it tends to retain moisture even though rising temperature reduces the relative humidity within the pack. The sorption of moisture by the hygroscopic packaging material and moisture retention for a sufficient period of time to allow the metallic part to warm prevent condensation. The packaging material assists the preservative compound by preventing the formation of a film of free water on the part or on the preservative film. The superiority, then, of the method IA-2 pack over the method IA-1 pack is attributed to the presence of a hygroscopic material in the form of paperboard which, under the unfavorable condition of a ruptured water barrier and changes in storage temperature, controls the formation of free water on the packed metallic item to such an extent that the preservative film is not deteriorated. In the method IA-1 pack condensation cannot be prevented after the water barrier has been ruptured, and the preservative film deteriorates.

TABLE I.—CORROSION RATING CHART. NUMERICAL DESIGNATION OF OBSERVED CORROSION

Type	Few Very Small Spots	Few Small Spots	Few Medium Spots	Few Large Spots	Area, % 5-10	10-20	20-30	30-40	40-50	Over 50
Stain—very light	1	2	3	4	5	6	7	8	9	10
Stain—light	2	4	6	8	10	12	14	16	18	20
Rust—very light	3	6	9	12	15	18	21	24	27	30
Stain—moderate	4	8	12	16	20	24	28	32	36	40
Rust—light	5	10	15	20	25	30	35	40	45	50
Stain—severe	6	12	18	24	30	36	42	48	54	60
Rust—moderate	7	14	21	28	35	42	49	56	63	70
Rust—severe	8	16	24	32	40	48	56	64	72	80

TABLE II.—CORROSION OF SPECIMENS, ACCUMULATIVELY RATED ACCORDING TO TABLE I, AFTER TWO 8-DAY CYCLE EXPOSURE TREATMENTS

Barrier or Moisture-Vapor-Transmission Rate	Method IA-1 Pack			Method IA-2 Pack		
	Sealed	Ruptured	Total	Sealed	Ruptured	Total
No Preservative						
Grade C	0	0	0	0	0	0
Moderate rate	91	88	179	70	80	150
Low rate	35	0	35	0	0	0
Total	126	88	214	70	80	150
USA Specification 2-122						
Grade C	9	8	17	6	16	22
Moderate rate	78	76	154	48	78	126
Low rate	14	66	80	0	18	18
Total	101	150	251	54	112	166
USA Specification 2-82						
Grade C	0	0	0	0	3	3
Moderate rate	6	12	18	0	0	0
Low rate	18	14	32	0	0	0
Total	24	26	50	0	3	3
Summary of All Conditions						
Grade C	9	8	17	6	19	25
Moderate rate	175	176	351	118	158	276
Low rate	67	80	147	0	18	18
Total	251	264	515	124	195	319

The method IA-2 pack can be considered as a method II pack in the early period of its life, particularly if the water barrier has a low moisture-vapor transmission rate. The included packaging material which is not ordinarily considered as being a desiccant tends if sufficiently dry at the time of packing, to maintain a low relative humidity within the pack.

Experimental Study Shows Superiority of Method IA-2 Pack over the Method IA-1 Pack

To obtain evidence that the sorptive materials in the method IA-2 pack are influential in preventing an accelerated breakdown of the corrosion-preventive compounds used in method IA packaging, an experiment was conducted that incorporated both method IA-1 and method IA-2 packages with and without ruptured water barriers. The test specimen was a steel rod 5 inches long with 3 inches of its length turned to 1⅜ inches in diameter, and ground to a fine finish and the remaining 2 inches of the rod machined to a diameter of 1¼ inches. The rods were cleaned and then washed in methyl alcohol to remove perspiration residues. They were then treated with a corrosion-preventive compound, wrapped in a grade A greaseproof wrapper and then packaged in accordance with method IA-1 or IA-2 procedures.

The study included the following variables:

A. Corrosion-preventive compounds
   1. None.
   2. U. S. Army Specification 2-122 compound.
   3. U. S. Army Specification 2-82 compound.

B. Packaging methods
   1. Method IA-1.
   2. Method IA-2.

C. Water barriers
   1. Grade C type 1 greaseproof wrapper, wax dipped.
   2. Water barrier with moderately low moisture-vapor-transmission rate (1.6 grams per 100 square inches per 24 hours at 100° F. and a moisture vapor pressure differential of 43 mm. of mercury) —heat sealed.
   3. Water barrier with low moisture-vapor-transmission (0.05 gram per 100 square inches per 24 hours at 100° F. and a moisture vapor pressure differential of 43 mm. of mercury)—heat sealed.

D. Barrier closures
   1. Good—fully sealed by wax dipping or heat sealing.
   2. Ruptured—small hole cut in sealed barrier.

E. Exposure without rough handling
   1. Standard 8-day cycle repeated once.
   2. Standard 8-day-cycle exposure followed by exposure to 120° F. and 97% relative humidity for 6 days and to 40° F. and 97% relative humidity for 1 day, continued for 4 weeks.
   3. Standard 8-day-cycle exposure followed by exposure to 120° F. and 97% relative humidity for 6 days and 40° F. and 97% relative humidity for 1 day, continued for 8 weeks.

Two steel rods were packed in accordance with each of the above variables, that is the sample size was two. After exposure, the packages were opened and the steel rods were examined for the presence of stain or of rust. The severity of corrosion was evaluated in accordance with the rating chart, Table I. For purposes of comparison the arbitrary values were accummulated rather than averaged. The summarized data for the three exposure conditions are given in Tables II, III, and IV.

As the exposure conditions were made more severe or extended, the total corrosion developed increased. Each of the tables, however, provides data to show that the method IA-2 nonconforming pack is consistently superior to the method IA-1 conforming pack regardless of whether the water barrier has a low or high moisture-vapor-transmission rate. In most tests, the method IA-2 pack with a ruptured barrier showed less corrosion than the method IA-1 pack with the barrier intact. The results are interpreted to mean that the presence of the paperboard in the method IA-2 pack was influential in reducing the development of corrosion on the steel test rods. This is the major conclusion to be drawn from this study. An examination of the data shows that U. S. Army Specification 2-82 compound was consistently more effective in the prevention of corrosion than U. S. Army Specification 2-122 compound. Both compounds, however, significantly reduced the amount of corrosion as compared with that which developed on rods not treated with corrosion-preventive compounds. It was also found that the method IA packs using a water barrier having a low moisture-vapor-transmission rate had a significantly less amount of corrosion on the test rods than the packages made with a water barrier having a moderate moisture-vapor-transmission rate. This might be interpreted to mean that a more durable method IA pack could be made with water barriers having a low moisture-vapor-transmission rate. The data also tend to show that the grade C wrapped wax-dipped package gave performance results about equal to that obtained when a water barrier having a low moisture vapor transmission rate is used.

The corrosion found on the test rods that were packed according to method IA-1 and sealed was about equivalent to that found on rods similarly packed but with a ruptured barrier. This would seem to indicate that the sealed barriers of the method IA-1 pack subsequently developed ruptures during the cyclic exposure tests equivalent to the ruptures that were deliberately made prior to exposure. This was particularly evident in the fully sealed grade C conforming packs in which small lifts of the wrap had developed.

The data collected in this experiment do not provide information to prove or disprove the suggested

TABLE III.—CORROSION OF SPECIMENS, CUMULATIVELY RATED ACCORDING TO TABLE I, AFTER 8-DAY-CYCLE EXPOSURE AND 4 WEEKS EXPOSURE TO 120° F.—97% RELATIVE HUMIDITY AND 40° F.—97% RELATIVE HUMIDITY

Barrier or Moisture-Vapor-Transmission Rate	Method IA-1 Pack			Method IA-2 Pack		
	Sealed	Ruptured	Total	Sealed	Ruptured	Total
No Preservative						
Grade C	72	48	120	3	3	6
Moderate rate	136	144	280	104	112	216
Low rate	17	77	94	0	10	10
Total	225	269	494	107	125	232
USA Specification 2-122						
Grade C	18	22	40	0	16	16
Moderate rate	60	59	119	32	36	68
Low rate	88	78	166	0	9	9
Total	166	159	325	32	61	93
USA Specification 2-82						
Grade C	10	20	30	1	2	3
Moderate rate	24	27	51	13	9	22
Low rate	5	22	27	0	15	15
Total	39	69	108	14	26	40
Summary of All Conditions						
Grade C	100	90	190	4	21	25
Moderate rate	220	230	450	149	157	306
Low rate	110	177	287	0	34	34
Total	430	497	927	153	212	365

theory that sorptive materials are active in controlling corrosion, but the superiority of the method IA-2 pack in providing protection is demonstrated. A further correlation between the laboratory exposure tests and field results is needed to establish life expectancies of method IA-1 and method IA-2 packs.

Military Packaging for Storage

If field experience and the results of laboratory experiments are acceptable as being indicative that sorptive materials definitely assist preservative compounds in preventing corrosion, the more general use of the method IA-2 pack can be recommended with considerable assurance. The elimination of void space is less important than originally believed. More important is the introduction of a sorptive material within the package. This applies to all classifications of protective packaging. Experience in qualifying moisture-vapor-barrier materials for method II packaging at the Forest Products Laboratory has shown the difficulty of making satisfactory method II floating-barrier packs. On the other hand, satisfactory method II carton-barrier- carton packs were readily made with a number of the available moisture-vapor-barrier materials. If the presence of the paperboard in these carton-barrier-carton packs can be assumed to perform as a sorptive material after the desiccant has been spent, it can be predicted that the carton-barrier-carton method II pack will outlast the floating pack because corrosion control is attained. It can also be predicted that the method IA-2 pack which incorporates a sorptive material within the water barrier in the form of paperboard, chipboard, fiberboard, or hygroscopic cushioning materials, will give better protection for a much longer period of time than the method IA-1 conforming pack. Military items or parts which are being stored will require inspection sometime during the future to determine whether deterioration due to corrosion is developing. When these inspections are made, it is anticipated that the method IA-2 pack will have shown better performance.

Military supplies are still being procured. It is recommended that whenever method IA protective packaging is required that the IA-2 pack be specified in preference to method IA-1.

Implications on Postwar Commercial Packaging

The protective packaging of military supplies and equipment has shown the decided necessity for good cleaning and preservation. Protective packaging will find its place in postwar commercial packaging procedures and the importance of proper cleaning and the use of good corrosion-preventive compounds cannot be overstressed. Where extended shelf life is indicated, or where packaging for export is being undertaken, the findings from field and laboratory experience with military packaging are applicable. As previously stated, the presence of sorptive materials in all classifications of protective-packaging methods is believed beneficial. Therefore, whenever a water or moisture-vapor barrier is used it is desirable to place it around the unit container so that the paperboard sorptive material is inside the package where it can do the most good. The method IA-1, or conforming, wrapping technique cannot be recommended as having postwar application.

TABLE IV—CORROSION OF SPECIMENS, CUMULATIVELY RATED ACCORDING TO TABLE I, AFTER 8-DAY-CYCLE EXPOSURE AND 8 WEEKS OF EXPOSURE TO 120° F.—97% RELATIVE HUMIDITY AND 40° F.—97% RELATIVE HUMIDITY

Barrier or Moisture-Vapor-Transmission Rate	Method IA-1 Pack			Method IA-2 Pack		
	Sealed	Ruptured	Total	Sealed	Ruptured	Total
No Preservative						
Grade C	168	145	313	32	42	74
Moderate rate ..	161	168	329	156	156	312
Low rate	107	88	195	0	71	71
Total	436	401	837	188	269	457
USA Specification 2-122						
Grade C	84	84	168	0	68	68
Moderate rate ..	168	126	294	132	131	263
Low rate	77	90	167	4	40	44
Total	329	300	629	136	239	375
USA Specification 2-82						
Grade C	16	34	50	0	12	12
Moderate rate ..	73	44	117	36	40	76
Low rate	10	48	58	0	10	10
Total	99	126	225	36	62	98
Summary of All Conditions						
Grade C	268	263	531	32	122	154
Moderate rate ..	402	338	740	324	327	651
Total	864	827	1691	360	570	930

Conclusions

The need for protective packaging of military supplies and equipment has resulted in the development of many new packaging materials and new packaging techniques. These new material and methods as applied to commercial postwar packaging require efficient use in order to keep costs down. Therefore postwar commercial protective-packaging procedures should be designed to make use of the characteristics of these packaging materials in every way possible to provide the desired corrosion control. This control can be obtained by preventing condensation through the use of paperboard sorptive materials as well as by maintaining low relative humidities.

Ohio TAPPI Discusses Microscopes

The Ohio Section of the Technical Association of the Pulp and Paper Industry met at the Manchester Hotel, Middletown, Ohio, on March 7, 1946. About fifty attended. Carl D. Roess of the Wren Paper Company presided as chairman. A round table discussion on "The Microscope as a Papermaking Tool" featured the meeting.

George Munro of the Champion Paper & Fibre Company, Hamilton, Ohio, discussed the types of microscopes and possible future uses. He outlined the history of their development from the simple compound type to the new optical and electron microscope.

K. P. Geohegan of the Aetna Paper Company, Dayton, Ohio, presented a paper on "What Can Be Done With A Microscope." He pointed out that the paper industry does not use the microscope as much as it should for the examination of fiber stricture, qualitative inorganic analysis and studies of reagents, fillers, etc. It is useful for studying the surface properties of paper used in printing.

Sam Olson of the Champion Paper & Fiber Company presented an interesting discussion of the binocular microscope for the evaluation of printing with particular reference to the practical routine.

Those present included: J. H. Tate, D. M. Yost, Phil Cade, Wm. White Jr., R. H. G. Smith, Robert Crawford, John A. Owen, Tony Agronin, Clyde M. Norcross, Wm. Trunnel, Lowell Haworth, G. H. Suhs, R. C. Stewart, Howard Buechler, A. W. Rizzo, Grant Sharpe, M. Magnuson, Art Coffin, Ken Geohegan, Frank Root, D. D. Cameron, J. H. Symes, George Munroe, Carl Roess, Douglas Robbins, Homer Lattimer, Bill Biven, Ed Johnson, C. W. Brandon, Paul Schaffrath, Leon Tyler, Harold C. Koch, Russell Arnold, Edward Lum, Wm. Reigers, S. Hluchan, C. W. Marion, Sam Olsen, Arthur Griffith, H. A. Harvey, W. H. Boast, J. Bauer, Fred Holt, Paul Miller, R. D. McCarron, Rudy Selver, J. R. Thomas.

The Future of Printing—As We See It*

By F. A. Weymouth [1]

Abstract

An attempt is made to evaluate the various factors which affect postwar printing. This opinion is given from the viewpoint of the printing ink manufacturer. Comments are made as to what may be expected to take place in typographic, offset, and gravure printing.

At the start of the war there were all sorts of dire predictions that printing would decline greatly in volume and that the industry in general would suffer. The prediction that the industry would suffer came true, but as all well know, from opposite circumstances. The suffering came from doing a large printing volume *(1)* with too little material and labor. To date this general condition has been but slightly alleviated because of the rapid conversion from war to civilian printing.

General Status of the Industry

In the postwar period and for the next few years all divisions of the graphic arts report enormous planned increases in printing. Commercial printing has been reported as going up 35% and lithographing as high as 77% *(2)*. Many national magazines are planning on greatly increased circulations; there will be advertising of products which were not sold during the war; there will be many new labels and descriptive advertising for new products; and the replenishing of inventories of merchandise will require a very large volume of printing.

It can be reported that there will be no atomic bomb as far as the printing industry is concerned. Many people have felt that because of the availability of new raw materials of all sorts developed during the war that revolutionary changes would take place in the printing process after the cessation of hostilities. There are several fundamental reasons why this did not take place and it is not expected to take place in the immediate future. This does not mean that definite progress will not be made, but these changes will come slowly for very fundamental reasons. To begin with, paper mills are operating at capacity so there is not too much time to make revolutionary changes in paper which might affect printing. The same thing is true of the printing press manufacturer. As a matter of fact, new presses are now just being built and are presses of the same type produced before the war. Immediate demand for paper, presses, and inks exceeds the supply.

Practically all of the recent innovations in printing which have to do with new inks have not come about by merely changing to the new ink. In most instances they have required changes in presses or the adding of additional equipment to presses. The ideal method of devising new printing ink would be one which is in a moist state on the press and have the same become hard immediately upon its deposit on the stock. This is possible in aniline and rotogravure printing but has not as yet been developed for typographic and lithographic printing without some added equipment such as heating devices and cooling mechanisms.

Since V-J Day and the lifting of the many restrictions on ink materials, the ink industry has been hard pressed to keep up with the great volume of printing ink used. The raw material suppliers to the ink manufacturer have not been able to build up any reasonable inventories but have supplied the ink manufacturer with enough raw materials to continue peak operations.

During the war and shortly prior to it there were a number of new beneficial materials developed which will, over the course of time, improve printing inks with respect to gloss, tinctorial strength, drying rates, and printing qualities. In a general way none of these materials are apt to be in themselves revolutionary. In other words, some mechanical press gadgets will probably be needed to assist inks made from new materials in producing the desired result.

Viewpoint of Ink Manufacturer

It is believed that the author's thoughts on the future of printing are reasonably unbiased since the ink industry is equipped to produce typographic, offset, aniline, and gravure inks. The ink manufacturer does not necessarily have to play favorites with respect to one type of printing process. The ink manufacturer has the same feeling about producers of various types of papers and presses. His job is to make the various inks required for these processes and to fit them in with the minimum amount of difficulty as far as the printer is concerned.

In a general way the ink producers feel very definitely that the accent of the printing of the future will be on improved printing with both black and white and color work, but produced at higher speeds. In typographic rotary printing the web speeds will be increased markedly as new presses are built. Printing performed on sheet delivered presses, whether offset or typographic, will be aimed towards the goal of faster printing and faster drying speeds. The plans for increased amounts of color printing are universal in all divisions of printing.

It is believed that the standards for printability will definitely be raised as rapidly as possible. There are indications already that the general poor quality in printing performed during the war because of substitutions in paper, ink, and generally inexperienced labor throughout all phases of the industry is rapidly coming to a close. Already there has been considerable pressure on improved printing by the buyer of printing. This will impose quite a number of problems, and in a greater degree on the higher speed web typographic presses, if it is possible to judge by the past. Higher speeds demand thinner inks and these lower ink viscosities do not improve the quality of the printing. At the same time, with the higher speeds planned for paper mill production, the paper mill will be hard pressed to keep up the quality of paper comparable to those made with lower machine speeds.

Printing Processes

Typographic Printing

The subject of improvement in news ink printing is at present lively and has an excellent chance for progress. News printing is the only printing process which still uses the method of printing the second side

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* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Plant Manager, International Printing Ink Div., Interchemical Corp., Chicago, Ill.

while the first side is still wet. Drying is entirely by absorption. There are several reasons for still clinging to this method and probably many have wondered why newspapers have not adopted the heat dried method so common to magazine publishing. One of the reasons has been that larger newspapers do not continuously run on their printing forms but have many changes due to various editions. The papers are printed on a great number of units in order that the entire newspaper can be run off in a relatively short time. This means that the problem of inks drying upon the press because of their being shut down is of major importance. It also happens that the design of newspaper presses is usually such that the amount of space required for heaters and cooling rolls is not adequate without webbing up the press in impractical manners. Newspaper publishers and advertisers are very much interested in improving the quality of their printing. There have been all manners of discussions about running better papers on front and back pages. There has been no point in changing the paper to a smoother surface, and even one which is slightly coated, unless the problem of obtaining an ink which will dry and not smear is overcome.

Experiments have been under way for some time in order to eliminate second impression offset and rub of news ink. These are not conventional types of ink. In the past the conventional type of ink has been made from carbon black and mineral oils. The new type of ink consists of carbon black but in a vehicle which allows the ink to dry by a method other than absorption. Tests of steam-set type inks have been reported as encouraging *(3)*.

Web publication (magazine) and catalog printing will reflect a number of changes both as to quality and brilliance in the months to come. A limited number of experiments were tried during the war and more are in the offing with respect to improvement of the black and white printing and multicolor process printing *(4)*. A problem of the present heat dried printing is that too much heat must be used, especially on heavier weight papers. Less or no heat would be desirable since the present methods tend to dull the color work and in many instances show burn spots on the web. The web must be heated at present at such a high temperature that there has been a resultant embrittlement of the paper. This causes the magazine pages to pull out of the stitching. The previous assertions that the planned circulation increases are of major proportions in this field of printing must be repeated.

Gloss ink printing for sheet fed typographic presses will again be on the increase as soon as papers become more and more available which are suited for gloss ink printing. Prior to the war the industry was producing quite a volume of gloss ink printing of reasonably good quality. A number of these papers contained high casein contents which were dropped during the war period. In the author's opinion glossy effects have always been desirable and it is expected that the interest will accelerate in this type of printing as soon as papers are available.

Rotary bag printing such as that produced for coffee bags is presently being printed with heat dried gloss inks. There seems to be reason to believe that this will continue.

In the field of carton printing there already are evidences of increased interest in gloss ink printing. Vaposet (moisture setting inks) are also increasing in interest to the carton printer because of their lack of odor. These inks are being run in a small way at the present time for particular jobs where odor is a problem.

Vaposet inks have already found wide use in the field of breadwrapper printing. Breadwrappers are rewound immediately after printing. The advantages of the Vaposet inks have been their lack of odor and the fact that they will dry thoroughly to the core in the matter of an hour or so allowing the rolls to be waxed promptly. Previous inks took as long as several days' time to dry, depending on the nature of the printing form. All of these Vaposet type inks require rubber rollers.

Offset Printing

The general consensus of opinion, based on orders for new presses and surveys by trade journals, indicates that there will be a great increase in the amount of offset printing. There are quite a number of typographic printers installing one or more offset presses in order to augment the printing facilities of their shops. A general impression gained also is that the use of coated paper for offset printing will greatly increase. It has been observed that color values have more brilliance when printed on coated paper as compared with uncoated. There is a noticeable trend in the increased use of offset printing among the finer grades of cartons. During the war some well known brands of soap cartons were lithographed and a creditable job was performed. The industry is rapidly improving its position by scientific studies of the "art of lithography" *(5)*.

Mention has been made that there are difficulties encountered in offset printing. In addition to the good features of the process, it might be well to enumerate some of the major problems which if not handled properly become very difficult. Owing to the fact that the process is planographic and that the printing area is on the same level as the nonprinting, not as thick an ink film can be carried as in the typographic process. Sometimes in reproducing the copy something has to be sacrificed, The control of the drying of offset inks is not as easily handled as that of typographic printing *(6, 7)*. It is very difficult to tell the amount of water that is being run on the dampening mechanism and subsequently on the nonprinting areas of the zinc plate. This water emulsifies with the ink and it is very easy on certain forms for the ink to become water logged. Hence, with the same ink running the same form on the same paper on a number of consecutive days of running, drying results may vary from a relatively short period of time to a matter of 2 or 3 days. This is an ink problem and it is a press manufacturer's problem. If an ink can be developed which will dry the same irrespective of the amount of water present, or if a press builder can manufacture a dampening mechanism which will apply a known volume of water, this difficulty will be solved.

A new type of ink called "Vapolith" has been running successfully commercially during the past two years. This ink is a heat dried lithographic ink. The black and white printing of one edition of a news magazine is lithographed by this method on roll fed, signature delivered, Webendorfer presses. After one side is lithographed the printing goes through a heater to dry the same and then the reverse side of the web is printed and dried again in the same manner. It is entirely possible to print four-color offset with the Vapolith method. Experiments have been conducted for the past several months on an eight-color offset

press which prints four colors one side, dries them, performs the same operation on the reverse side of the web, and delivers the same in folded signatures.

The use of such a method whereby the offset process can be used in publication printing is tied up with developing a suitable lithographic plate which will run for a minimum of several hundred thousand or more impressions without the usual attendant difficulties of present lithographic plates. Considerable work was started before the war and a small amount has been continued during the war on steel plates *(8)*, multiple metallic plates, etc., which if finally developed, would fit very nicely into this process. As yet there has been no side commercialization of these plates and the work has been confined to a few spot tests.

The Vaposet type of ink is not suitable for the offset process since the presence of water on the press would cause instant setting up of the vehicle on the press rollers.

For some time there has been quite a controversy on the merits of offset versus letterpress. Much of the resistance of certain letterpress printers to offset would possibly be broken down were the process thoroughly understood and tried. On the other hand, many of the backers of offset have minimized some of the difficulties of the process. The large number of offset presses which were ordered for delivery after the war attest to the fact that offset is becoming increasingly popular. During the past few years some of the most interesting and best attended meetings of the printing clubs have been on the nights devoted to discussion of offset. It does not appear that offset will replace typographic printing but will add to the greatly increased volume of printing.

Gravure Printing

Very great strides have been made in gravure printing during the past few years, particularly in the publication field. Four color reproductions on relatively low cost groundwood type papers have color values which are not reproduced by any other printing process. The present day gravure presses operate at very high web speeds and a considerable number of additional presses are being built. One of the difficulties with the gravure process has been in the duplication of cylinders and this is tied up with problems involved in etching. Progress has been made in perfecting cylinders.

There has been an increased use in gravure for printing long runs on materials like cellophane. Gravure is desirable because of the fact of its instant drying.

Aniline (Rubber Plate Printing)

There will be a very rapid rise in aniline printing. The name "aniline" is really a misnomer since it stems from the original inks which were solutions of dyes in alcoholic-shellac. Many present day aniline inks are pigmented. There are a great number of presses on order and since they are relatively simple in design it is expected that quite a number of these will be in operation before the end of the year. Aniline is desirable for packaging because of its instant drying on materials like cellophane, glassine, and other transparent, more or less impervious wrapping materials. Aniline is being used in the printing of many candy wrappers, paper bags, wrapping papers, window signs, etc. *(9)*.

Plastic Printing

Shortly prior to the war and during the war many new plastic sheetings were developed. It is now expected that these will be commercialized. All of the specialty printers in the country are seeing what can be done with these new products. In the general list of these materials such products as cellophane, cellulose acetate, cellulose nitrate, ethocel, pliofilm, vinylite and others will be found.

The Importance of Paper

To meet the coming demands of improved printing at higher press speeds, paper mills are confronted with a new challenge. A number of paper mills are stepping up their laboratory programs and equipment to study more closely the ultimate uses of their product.

The ink manufacturer is very much aware that paper is the foundation upon which his ink is printed. Time and again he has demonstrated the fact that a good quality ink printed on a good printing surface can never be equaled by the best in inks printed on poor printing surfaces. The wider use in the paper mill laboratories of printing press testing techniques will greatly aid in the joint problems.

The immediate future of printing will be chaotic for some months to come until reconversion is fully effected. Meantime it can be expected that buyers of printing will stress quality and increased production. The papermaker, press builder, ink manufacturer, and printer will be hard put to meet these more exacting postwar demands.

All contributors to the graphic arts might well heed the words of that excellent printer, Daniel Berkeley Updike . . . "But two kinds of printing exist in the world—good and bad. Printing is a trade and not an art, but it has frontiers on the arts. Printing is a trade and not a profession, but it can be practiced in the spirit of a profession."

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TAPPI Notes

Saul M. Silverstein is now president and Sidney Brown vice president in charge of production at the Rogers Corporation, Manchester, Conn.

Einar Walloe, formerly of the Marathon Paper Mills of Canada, Ltd., is now general pulp mill superintendent for Bloedel, Stewart & Welsh, 510 Hastings Street West, Vancouver, B. C.

Charles L. Bauer has announced his retirement as president of The Bauer Bros. Co., Springfield, Ohio. Mr. Brauer has participated in this firm for the past 42 years. Col. Joseph C. Shouvlin, recently released from the Armed Forces has been elected president of the Company.

Eloi Sampaix, mill manager of the Union des Papeteries La Hulpe, St. Servais, Belgium, is visiting in the United States.

Jean Montet, chlorine department manager, Soc. Progil, Paris, France, is also a visitor.

Franklin A. Caton has resigned as consultant and engineer on cylinder specialties at the American Writing Paper Company. Mr. Caton has no immediate plans and may be reached at Box 465, Holyoke, Mass.

Magnesium Base Sulphite Pulping*

By R. S. Hatch[1]

Abstract

This paper describes possible methods of disposing of or utilizing the organic solids in sulphite waste liquor.

Under "utilization" the cyclic process which depends upon change of base from calcium to magnesium with the evaporation and burning of the magnesium base waste liquor and the recovery of heat and cooking chemicals is outlined.

Modifications of the cooking process leading to greater steam economy, chemical engineering problems involved, and expected savings in sulphur and base are described.

During the past decade there has occurred a renewed interest in what to do with the waste liquor from the sulphite process. This has resulted largely because of numerous state and federal laws either already enacted or proposed for the abatement of stream pollution. In addition to the stream pollution aspect of the problem there is, of course, the economic aspect which merits equally intensive study, since more than half of the raw material entering the sulphite process appears in the waste liquor as dissolved organic solids.

Disposal of Waste Liquor

The study of the waste liquor problem has followed two general lines of endeavor: one may be called "disposal" and the other "utilization."

Waste liquor disposal has as its object the reduction of the B.O.D. of the waste liquor to such an extent that relatively little decrease in the dissolved oxygen content will occur in waters receiving the discharge from sulphite mills. This involves the use of trickling filters, reaeration, or chemical alteration of the carbohydrate portion of the waste liquor. None of these suggested treatments, however, seeks to recover values from the waste liquor and may be considered to be a continuing expense in equipment, power, and maintenance which will definitely add to the cost of the pulp produced.

The utilization of the solids in sulphite waste liquor has been approached from two different points of view: one group of workers has actively endeavored to convert the organic material into useful chemical compounds or to extract from the waste liquor by precipitation or other means the lignin or carbohydrates in such a manner that they will find commercial outlets. A considerable measure of success has attended these efforts and numerous products produced from waste liquor have found a more or less restricted market.

The total production of sulphite pulp in North America amounts to approximately 14,500 tons per day, which means that somewhat over 14,500 tons per day of organic solids are available which might serve as a starting material for an organic chemical industry. This tremendous amount of organic material naturally makes the utilization problem both difficult and complicated unless products of entirely new and widespread use can be produced. There is little doubt that as more intimate knowledge is gained of the structure of the organic material in waste liquor, the field of products which may be produced will be greatly enlarged, but the effort will be time-consuming and will not immediately solve the problem. In the meantime the necessity of either taking these solids out of the streams or rendering them harmless as proposed by the various methods of disposal is faced.

Under the head of "utilization" there is another very important consideration: the raw materials used by the manufacturer of sulphite pulp are wood, chemicals, and energy in the form of process steam and power. The B.t.u. value of the dry organic solids present in waste liquor lies between 7000 and 8000 B.t.u. per pound. This material, under the proper conditions, offers a valuable source of energy in the form of fuel. If in the process of utilizing the organic solids as a source of energy it is found possible to recover the chemicals used for producing the pulp, there would result a cyclic process in which all of the resultant products could be utilized by the pulp manufacturer and no effort would have to be expended in the search for markets outside of the pulp industry.

Magnesium Base

Because of the seldom recognized property of magnesium sulphate of reducing to caustic magnesia under certain operating conditions rather than to the sulphide, as is true of calcium sulphate, such an aim can be economically accomplished by changing the base used in the manufacture of cooking liquor from calcium to magnesium. The magnesium base waste liquor is evaporated and burned under prescribed conditions. The highly reactive caustic magnesia which forms the main portion of the resulting ash is collected from the flue gases, made into a slurry, and advantageously used to absorb the SO_2 in the flue gases to form fresh cooking liquor.

This process was disclosed in a paper by Tomlinson and Wilcoxson *(1)* and presented before the Technical Association during the February meeting in 1940. At the same time that Tomlinson and Wilcoxson were carrying on their investigation, the Pulp Division of the Weyerhaeuser Timber Company was independently developing the same process. The three groups eventually entered into a cooperative arrangement, the object of which was to utilize all of the experience gained in the study of this process and the various patent rights acquired and to offer to the industry an efficient and economical answer to the problem of waste liquor utilization. It was decided that the mill of the Pulp Division of the Weyerhaeuser Timber Company, located at Longview, Washington, would be the first to change over to the new process. The entry of the United States into World War II prevented the immediate conversion of the Longview mill to this process. With the cessation of hostilities, however, and with the availability of the necessary materials of construction, plans are now going ahead and it is hoped that the Longview mill will be converted and in operation in the course of the next eighteen months.

*Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1]Member TAPPI; Director of Research, Pulp Division, Weyerhaeuser Timber Co., Longview, Wash.

The purpose of this paper is not to repeat the substance of the paper which was so well and thoroughly presented by Tomlinson and Wilcoxson, but, rather, to indicate those improvements and modifications which have been suggested as the result of cooperative study and experience.

Liquor Ratio

In the construction of a full-scale plant for operation under the proposed process, a number of chemical engineering problems have arisen. Under normal operating conditions, sulphite waste liquor is relatively low in total solids, the normal percentage of solids amounting to 10 to 12%. As is well-known, when cooking wood with calcium base liquor, the chip charge is entirely submerged in cooking acid, which, in normal practice, amounts to a ratio of approximately 4 to 5 pounds of total liquor per pound of moisture-free wood. There are two reasons for operating in this manner: one is the solubility of calcium bisulphite. Because of its low solubility, relatively high dilutions must be carried. It has also been the common practice to keep the chip charge completely submerged to avoid the formation of so-called burned chips.

When magnesium is used as a base there is quite a different situation. Magnesium bisulphite is very soluble and magnesium sulphate, which may accompany the bisulphite, is also very soluble. It is, therefore, possible to cook wood with solutions of magnesium bisulphite having a very much higher concentration than is possible with solutions of calcium bisulphite. The possibility of lowering the liquor ratio to moisture-free wood was very thoroughly investigated by Palmrose *(2)*, who demonstrated, in the course of his work, that liquor ratios as low as 2.5 pounds of total liquor per pound of moisture-free wood could be successfully used for cooking provided circulation in the digester was so arranged that the liquor could be circulated from the bottom of the digester to the top and caused to cascade down through the chips in such a manner that the chip charge was kept continuously wetted with the circulating liquor.

By lowering the liquor ratio the concentration of dissolved solids can be materially increased and the steam requirements for evaporation and for cooking can be materially reduced. For example, when operating with a liquor ratio of 4.5 pounds of total liquor per pound of moisture-free wood, and evaporating the waste liquor to a concentration of 60% total solids, the over-all steam requirements will be 25% greater than when operating with a liquor ratio of 2.5 pounds of total liquor per pound of moisture-free wood. In both cases, when burning waste liquor of 60% total solids, the same amount of steam is generated.

Recovery

By generating steam at relatively high pressures, ample power for the operation of the mill can be extracted in suitable turbine equipment; the exhaust from which furnishes process steam.

Data accumulated in the operation of the pilot plant at Cornwall, Ontario, and that built and operated at Longview, Washington, indicate that the recovery of magnesium oxide is very high; the only losses of magnesium are the very small amounts retained by the pulp in the countercurrent washing of the pulp on vacuum filters. There is little tendency for pulp to absorb cooking chemicals, wherein the sulphite recovery process differs quite distinctly from the alkaline recovery process. The combustion gases leaving the furnace are very low in SO_2 concentration, and a small amount of sulphur is converted to SO_3. It has been found, however, that this SO_3 is absorbed and appears as magnesium sulphate in the regenerated liquor. This magnesium sulphate, being very soluble and inert, has no effect in the cooking operation, and when returned to the furnace is broken down to magnesium oxide and SO_2. Experience has shown that the magnesium sulphate gradually builds up to an equilibrium point and then remains constant. At equilibrium condition the magnesium existing as sulphate amounts to approximately 7% of the total magnesium present.

Calcium salts extracted from the wood, or present as impurities in purchased magnesium oxide, are removed from the magnesium bisulphite solution, leaving the absorption towers by means of suitable filters. These calcium salts appear as calcium sulphate or calcium monosulphite and are thus the cause of some sulphur loss. This sulphur loss can be kept at a minimum provided a magnesium oxide of high purity is purchased.

With the tremendous development which occurred during the war in the production of metallic magnesium, large-scale facilities were installed for the production of a magnesium oxide of high purity from sea water. This makes available an ample supply of pure magnesium oxide for the operation of this process. A review of the data accumulated in the operation of the pilot plant indicates that the magnesium loss in the operation of the process should not exceed 5%, and the sulphur loss can probably be kept down to not more than 10%. It will thus be seen that a mill normally using 250 pounds of sulphur per ton of pulp, when operating under the magnesium bisulphite process, would require only about 25 pounds of sulphur per ton and something in the vicinity of 7.5 pounds of magnesium oxide per ton; a marked reduction in over-all chemical consumption. At the same time, when operating with relatively low liquor ratios, enough steam and power may be produced to operate the mill.

Operation

In the operation of this process it is obvious that some changes must be made in the design of the conventional sulphite mill. When operating at low liquor ratio it is neither possible nor desirable to blow the digesters. They should be blown down to atmosphere to recover the maximum amount of free SO_2 and heat. The digester is then washed out with strong waste liquor from previous cooks into a suitable chest from which the pulp is pumped to the countercurrent washing system. The strong waste liquor, prior to entering the evaporators, is neutralized with sufficient magnesium oxide to raise the pH to between 7 and 8. This avoids the breakdown of loosely combined sulphur compounds in the evaporators and results in maximum recovery of sulphur. It also prevents excessive corrosion of the evaporators. At the Longview mill a new boiler house will be erected for the recovery system because, at present, steam is drawn from the sawmill boiler house. To insure a high percentage of caustic magnesia in the ash and a minimum conversion of SO_2 to SO_3, a special recovery furnace and boiler has been developed.

The absorption of SO_2 from the combustion gases, with a slurry made from the highly reactive ash recovered from the furnace, is a relatively simple operation. This is done in grid-packed towers, and a

practically complete clean-up of the SO_2 from the combustion gases can be accomplished. In addition to calcium extracted from the wood by the cooking process, varying amounts of potassium are also extracted, depending upon the species, soil, and location of the forest. Under normal conditions, the potassium salts extracted are sublimed in the furnace and pass through the absorption system as a fume, although small amounts are retained in the ash. These potassium salts tend to reach an equilibrium concentration and no difficulties are expected from this source.

An attempt has been made in this paper to outline some of the essential features of the magnesium bisulphite process and to indicate some of the chemical engineering problems involved in an installation of this type. This process is very distinctly one which utilizes the energy values contained in the organic waste and recovers the chemicals used in cooking. It is definitely a solution of the stream pollution problem and this solution is accomplished in such a manner that all of the products of the process are immediately utilized by the pulp manufacturer. It is obvious that partial or total utilization of the organic waste may eventually be worked out. If the financial return from organic compounds which may be produced from waste liquor can be made to exceed the fuel value of the waste liquor solids, and if markets can be found that will absorb these compounds, undoubtedly an organic chemical industry may be founded on the organic waste material, but until such conditions exist, the magnesium bisulphite process seems to offer the best method of utilizing the waste liquor solids and at the same time doing away with the problem of stream pollution.

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Economic System Discussed at Delaware Valley Meeting

The Delaware Valley Section of TAPPI held its March meeting at the Engineers Club in Philadelphia, Friday night, March 8, 1946. Mr. John Cornell, co-publisher of the Paper Mill News, presented a very interesting discussion on the evolution of economic systems. After indicating the differences between the present and past, he made predictions as to the economics and society of the future. Many of the following who attended joined in the discussion which followed Mr. Cornell's presentation. R. T. Bingham, A. L. M. Bixler, Geo. K. Boger, Jr., Arch F. Bowers, C. L. Brickman, H. C. Brill, S. G. Briscoe, K. W. Britt, Arnold M. Browon, J. W. Burke, L. B. Carothers, John Carson, C. M. Connor, J. C. Dieffenderfer, W. P. Dohne, J. C. Eaton, Jacob V. Edge, H. J. Farra, H. L. Geer, Frederick W. Goetz, Jesse Good, Ralph E. Green, L. V. Hans, J. C. Harper, Jr., Harry Hulmes, Sewell T. Jamison, F. I. Kitbredge, D. Kenneth McCurdy, Alex. McInnes, Geo. B. Martin, George V. N. Morin, D. H. Newcomb, Joseph H. Pairello, Homer F. Ray, Henry Reeves, Jr., C. H. Rice, C. H. Rybolt, J. C. Schmidt, Edw. A. Shallcross, Sr., Chas. A. Shubert, M. H. Simon, Howard H. Street, Geo. W. VanSteenburgh, W. S. Stephenson, Thomas W. Toovey, D. R. Traill, Kingdon R. Watt, John Weidner, R. Wiggins, Paul H. Yoder.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry have elected the following to membership:

Arthur A. Bernhardt, Bandsman, U. S. Army, Camp Crowder, Missouri. Junior year in Pulp and Paper completed at New York State College of Forestry before entering Service.

Chris F. Bingham, Manager of Industrial Sales, Virginia Smelting Co., West Norfolk, Virginia, a 1930 graduate of the Virginia Polytechnic Institute.

George K. Boger, Jr., Chemist, W. C. Hamilton & Sons, Miquon, Pennsylvania.

Robert E. Bowen, Technical Director, North Carolina Pulp Co., Plymouth, North Carolina, a 1935 graduate of North Carolina State College.

Thomas H. Bradley, Hardware-Mill Supply Distributor, 122 Arsenal St., Watertown, New York, a 1922 graduate of the University of Pennsylvania.

Edward T. Buchanan, Assistant to the Chief Engineer, Consolidated Paper Corp., Ltd., Grand'Mere, P. Q., Canada, a 1928 graduate of McGill University.

Warren C. Crump, Deputy Head Engineer, Hydrographic Office, U. S. Navy Department, Washington 25, D. C., a 1940 graduate of George Washington University.

Eibe W. Deck, Development Engineer and Consultant, Trent Engineering Co., East Troy, Wisconsin, a 1930 graduate of Stevens Institute of Technology, and a 1932 graduate of Harvard Engineering School.

George H. Ferguson, Project Engineer, Alvin H. Johnson & Co., 415 Lexington Ave., New York 17, N. Y., a 1922 graduate of the University of Maine.

Arthur W. Frey, Sales Engineer, The Sinclair Co., 60 Appleton St., Holyoke, Massachusetts.

George D. Fronmuller, Mill Research Engineer, Scott Paper Co., Chester, Pennsylvania, a 1933 graduate of Brooklyn Polytechnic Institute.

Martin J. Galbraith, Development Engineer, Sutherland Paper Co., Kalamazoo, Michigan. Attended New York University.

Roy A. Garnett, Sales Manager, Whiting Corporation (Canada) Limited, 45 Richmond St., West, Toronto 1, Ont., Canada, a 1938 graduate of Tri-State College.

William H. Hall, Quality Control Dept., Kimberly-Clark Corp. of Canada Ltd., Kapuskasing, Ont., Canada, a 1943 graduate of Queen's University.

Joseph E. Hartford, Paper Mill Production Engineer, Philip Carey Manufacturing Co., Lockland, Cincinnati, Ohio, a 1933 graduate of Iowa State College.

Kenneth H. Hunt, Chief Chemist, West Virginia Pulp & Paper Co., Williamsburg, Pennsylvania, a 1935 graduate of Bucknell University.

Nicholas A. Jappe, Chief Chemist, Coos Bay Pulp Corp., Anacortes, Washington, a 1945 graduate of the University of Washington.

Glengarry D. King, Research Chemist, Crown-Zellerbach Corp., Camas, Washington, a 1933 graduate of the University of Washington.

Frank A. Knight, Pulp Mill Superintendent, Eastern Corporation, Bangor, Maine, a 1938 graduate of Massachusetts Institute of Technology.

Harry C. Martin, Technical Director, Brown Paper Mill Co., Inc., Monroe, Louisiana, a 1934 graduate of Lehigh University.

Delton C. Beaulieu, Process Engineer, Kimberly-Clark Corp., Neenah, Wisconsin.

MODERNIZING

What about the Material Handling Problem?

Those mills that invested in locomotive crane equipment years ago for the handling of their pulp wood should give serious consideration to modernizing this part of their operations along with other plant modernization planned for the next few years.

Northwest Crawler Cranes will cut your material handling costs and give you increased versatility and speed that will go far beyond the pulp yard.

Your Northwest needs no tracks. First cost is lower. It goes anywhere. It can unload to a greater area than a locomotive crane of greater boom length. It can unload a whole train of cars without an extra line of track or switching cars out of the way. It can be routed from job to job. It handles any kind of material from coal and ashes to finished rolls or cases. It can handle the material handling end of plant expansion without the addition of rail or other construction.

Plan your plant expansion to include cutting the cost of material handling. Northwests bring you a combination of advantages found on no other crawler crane. Why not plan ahead to have one? Let us send you details on the size that interests you.

NORTHWEST ENGINEERING CO.
1815 Steger Building
28 E. Jackson Boulevard
Chicago 4, Illinois

4 to 44 tons

NORTHWEST

CAMACHINE 15
WINDER
FOR PAPER AND PAPER BOARD

Produces clean-cut rolls of *controlled* density, as hard or as soft as you like. Speeds up to 2000 f.p.m. on paper, and 1000 f.p.m. on paper board. Roll diameters up to 42". Built in widths of 53" to 92". A minimum strip width of 2", with special slitter attachment.

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WRITE FOR DETAILS

CAMERON MACHINE COMPANY
61 POPLAR STREET, BROOKLYN 2, N. Y.
MIDWEST OFFICE. 111 W. MONROE ST., CHICAGO 3, ILL.

New York Paper and Pulp Market Review

Paper Production Rises To Near Record High—Pulpwood Receipts And Wood Pulp Output Higher In January—Mill Inventories of Waste Paper Higher—New and Old Cotton Rags Demand Heavy.

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1946.

Current reports indicate that the all-over paper supply situation is improving more rapidly than had been anticipated. Production for the week ended March 2 rose to 101.8% and inventories are reported increasing at a very satisfactory rate. Demand is running high for some types of paper, particularly for book paper for the production of magazines. January output of paper, all grades, as reported by the Department of Commerce, was 779,343 tons, compared with 709,444 tons in December; paperboard, all grades, 725,184 tons, compared with 660,072 tons in December.

The index of general business activity for the week ended March 2 rose to 126.1, from 118.3 in the previous week, compared with 143.1 for the corresponding week in 1945. The index of paperboard production was 161.3, compared with 156.0 in the previous week, and with 150.8 for the corresponding week in 1945.

Paper production for the week ended March 2 was estimated at 101.8%, compared with 89.3% for 1945, with 88.7% for 1944, with 89.7% for 1943, and with 102.7% for the corresponding week in 1942.

Paperboard production for the week ended March 2 was 93.0%, compared with 96.0% for 1945, with 95.0% for 1944, with 93.0% for 1943, and with 101.0% for the corresponding week in 1942.

Pulpwood

Pulpwood receipts at the mills in January totaled 1,335,886 cords, compared with 1,070,116 cords in December. Increases in wood were reported by the Department of Commerce in all regions except the South. Imports from Canada also increased. Pulpwood receipts above consumption increased inventories 27,000 cords.

Wood Pulp

Wood pulp production in January, all grades, totaled 943,941 tons, of which 689,646 tons were of own manufacture, 96,679 tons purchased. Imported wood pulp totaled 31,059 tons of own manufacture and 126,557 tons were purchased pulp. Inventories in January of domestic wood pulp of own manufacture totaled 28,329 tons; purchased, 140,694 tons; imported, own manufacture, 13,033 tons, and purchased 371,060 tons.

Rags

Mill demand for new cotton cuttings is steady. Most current reports indicate supplies are well below current demand. Prices are firm at ceiling levels.

Trading in old cotton rags continues active. Roofing felt mills are buying steadily and all usable grades are in relatively heavy demand. Prices are firm.

Old Rope and Bagging

Supplies of old Manila rope continue scarce, with demand high above limited supplies. No immediate improvement in the supply situation is expected. Supplies of sisal and jute are reported adequate.

More inquiries are reported in some quarters for scrap bagging and gunny this week. Buying is still light with supplies rather limited. Prices are relatively firm.

Old Waste Paper

Mill demand for old waste paper is active this week. Inventories at mills are reported improving. All grades of paper stock are in good demand. Prices are firm at ceiling levels. January receipts of waste paper totaled 593,068 tons, compared with 496,036 tons in December.

Dr. Merchant Resigns as Secretary

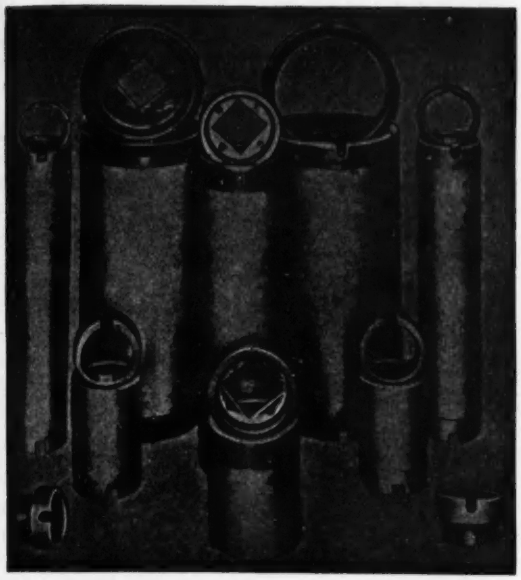
Dr. Ely O. Merchant, who has served as secretary and treasurer of the Groundwood Paper Manufacturers Association since its organization in 1933, has tendered his resignation. He also has resigned as secretary-treasurer of the Salesmen's Association of the Paper Industry, a position which he has held since 1936.

Dr. Merchant is a graduate of Amherst College and Columbia University, where he majored in Economics and Statistics. During the past 35 years he has served the following agencies and organizations:

U. S. National Waterways Commission.
Bureau of Corporations, Department of Commerce
Federal Trade Commission
War Industries Board-Pulp & Paper Division
Fibre Container and Paperboard Associations
The G. H. Mead Co., Dayton, Ohio
Canadian Newsprint Co.
American Match Manufacturers Association
The Match Institute
Groundwood Paper Manufacturers Association
Salesmen's Association of the Paper Industry
Newsprint Manufacturers Association of the U. S.

At the annual meeting of the Groundwood Paper Manufacturers Association, Dr. Merchant forecast a new high record of production for groundwood specialties in 1946. The previous record was made in 1941 with an output of about 642,000 tons. In 1933 when this Association was organized under NBA, the production of groundwood papers was only about 400,000 tons per annum, and this tonnage consisted largely of unbleached grades with substantially a newsprint furnish. In recent years new high quality printing sheets containing bleached pulp have been developed, which are receiving wide acceptance.

As secretary of the Salesmen's Association Dr. Merchant has seen an increase of more than 100 in the membership. The Annual Luncheons held during Convention Week have been the outstanding feature of these conventions, to which all who attended looked forward with great anticipation. While ODT regulations and the shortage of hotel accommodations have forced the elimination of this event during the past two years, the officers and members are already making plans for a bigger and better Annual Luncheon in 1947.



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CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

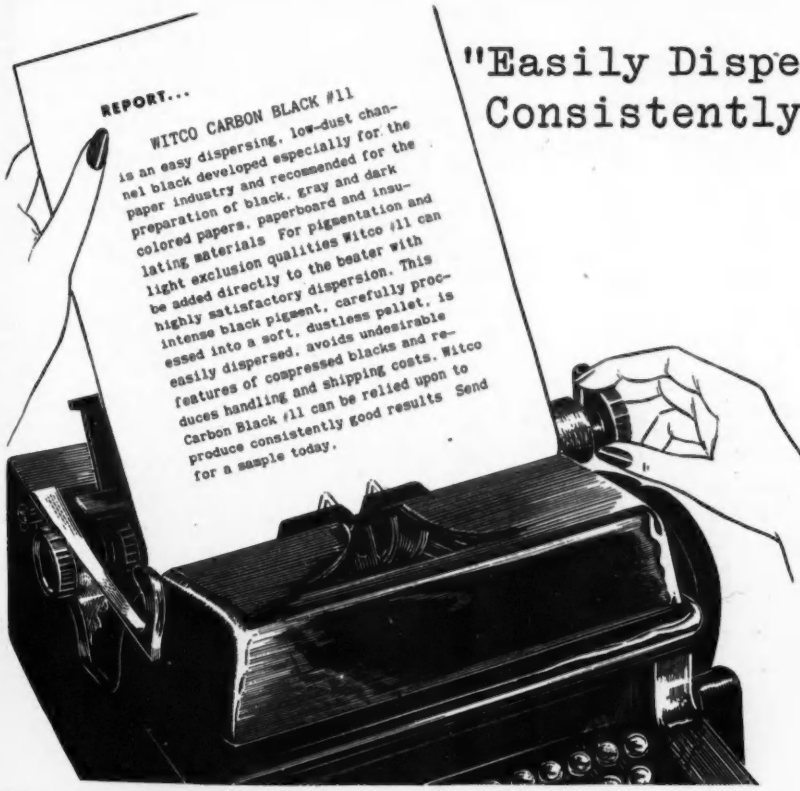
Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

CORES

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.


REPORT...
WITCO CARBON BLACK #11
is an easy dispersing, low-dust channel black developed especially for the paper industry and recommended for the preparation of black, gray and dark colored papers, paperboard and insulating materials For pigmentation and light exclusion qualities Witco #11 can be added directly to the beater with highly satisfactory dispersion. This intense black pigment, carefully processed into a soft, dustless pellet, is easily dispersed, avoids undesirable features of compressed blacks and reduces handling and shipping costs. Witco Carbon Black #11 can be relied upon to produce consistently good results Send for a sample today.

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Consistently Good Results"

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295 MADISON AVENUE, NEW YORK 17, N. Y.

Boston • Chicago • Detroit
Cleveland • Akron • London

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1946

BLANC FIXE—Quotations on blanc fixe continue unchanged. Demand is reported moderate. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—All-over current demand continues active. Supply situation is reported good. Quotations continue unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point. Imported 24 cents.

CAUSTIC SODA—Demand heavier as rayon mills increase purchases. Deliveries continue slow. Supply tight in dry grades. Output of liquid and solid higher in December. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 per 100 pounds.

CHINA CLAY — Quotations on china clay are unchanged. Current demand is reported heavy. Supply short. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand good with supply adequate for all uses. Containers in short supply. Quotations unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—No offerings and sales. "G" gum rosin is quoted at $6.74 per 100 pounds, in barrels, at Savannah; "FF" rosin at $6.70 per 100 pounds in barrels, at New York; seventy per cent gum rosin size at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Demand rising as soda ash tightens. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH — Heavy demand continues for all-over requirements. Bulk lot shipments steady. Bagged lots improving. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn receipts and shipments hampered by unfavorable weather. Purchases of cash corn for deferred shipment 185,000 bushels. Prices steady. Starch prices continue unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Demand reported steady. Supply situation improving. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand active. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand good. Domestic grades are currently quoted at from $16 to $21 per ton at mines; Canadian at $24 per ton.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$61.00	@	—
Sheets	69.00	@	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*54.00	@	—
Chip	*54.00	@	—
Sgl. Mla. Ll. Chip	*65.00	@	—
White Pat. Coated	*79.00	@	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper
Delivered in Zone 1:

No. 1 Glossy Coated	$13.65@$15.50
No. 2 Glossy Coated	12.40 " 14.00
No. 3 Glossy Coated	11.60 " 13.25
No. 4 Glossy Coated	11.15 " 12.75
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. C.	9.10 " 10.50
C Grade E. F.	8.55 " 9.75
C Grade S. C.	8.80 " 10.00
D Grade E. F.	8.25 " 9.50
D Grade S. & S. C.	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight. Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00 @ 82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	82.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	76.00
Unbl. Soda	72.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1.	6.50	@ 7.25*
Silesias No. 1	—	" 5.75*
New Unbleached	6.75	" 7.50*
Blue Overall	—	" 5.50*
Fancy	—	" 3.50*
Washables	—	" 3.00*
Bleached Khaki Cuttings	—	" 4.25*
Unbleached Khaki Cuttings	—	" 3.50*

* OPA Maximum Prices.

ONE MISCUE SPELLS DISASTER

Felts are like Milady's silk hose. One undetected flaw in manufacture, one miscue while installing and starting up a felt or during wash-ups, inflicts irreparable damage.

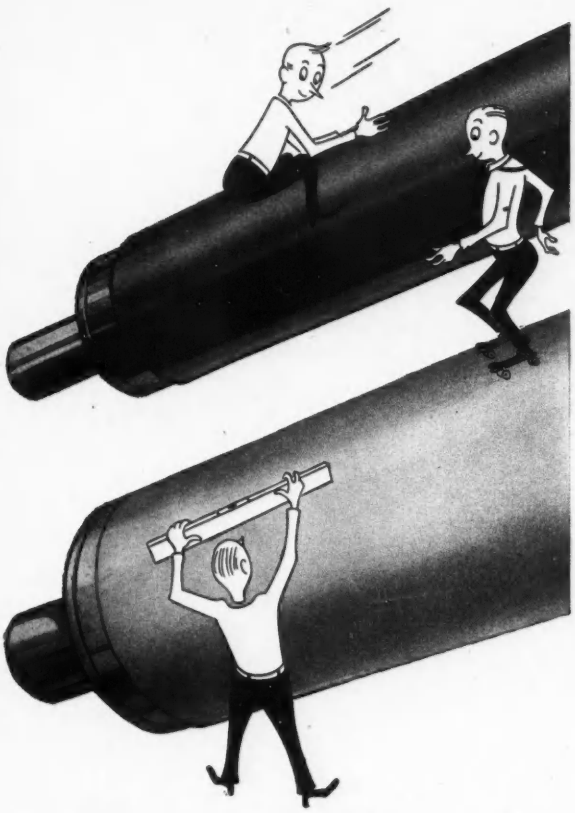
That's why machine crews should be so thoroughly coached on the handling of felts that mishaps do not occur.

ORR Felts are available in all required textures for machines of all sizes, running on all grades.

Consult the ORR representative in your area.

THE ORR FELT & BLANKET CO.
PIQUA, OHIO

Orr Felts



Uniform Surfaces for Superior Calendering

Remember the finish on the paper can only be as good as the rolls in the calender. That is why so many of America's leading manufacturers are standardizing on Butterworth Calender Rolls. Surfaces are absolutely true and even, assuring superior calendering results at low cost.

Butterworth Calender Rolls are made to specification and tested for hardness, smoothness and density before delivery. Placed in the stack with any other roll, Butterworth Calender Rolls give many extra hours of service without requiring turning down or refilling.

We furnish new rolls or will refill your present rolls.

For full information, write or call H. W. Butterworth & Sons Company, Philadelphia 25, Pa. — Textile Finishing Machinery Company Division, Providence, R. I. : : Charlotte, N. C., 1211 Johnston Bldg. : : In Canada — W. J. Westaway Co., Hamilton, Ont.

Butterworth CALENDER ROLLS

Old Rags

White, No. 1—			
Repacked	*3.80	@	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Thirds and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.30	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 "(bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

Pre-War Quotations

All Prices Nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.25	@	3.30
Wool Tares, light	3.25	"	3.50
Wool Tares, heavy	3.50	"	3.75
Bright Bagging	3.25	"	3.50
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.50	"	—

* OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—			
Sisal Strings	.04	"	—
No. 2 Clean Bright—			
Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¾
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.85	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—